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The Modern Teachers' Series

EDITED BY WILLIAM C. BAGLEY

MODERN EDUCATIONAL THEORIES

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MODERN EDUCATIONAL THEORIES
By BOYD H. BODE

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MODERN EDUCATIONAL THEORIES

BY

BOYD H. BODE

PROFESSOR OF EDUCATION
OHIO STATE UNIVERSITY

New York
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1927

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PREFACE

THE purpose of this volume is primarily to assist the reader in securing perspective with reference to the various movements and tendencies that are embodied in the educational thinking of the present time. We are in a period of exceptional educational activity, which makes orientation both more difficult and more important. Persons engaged in the work of education are naturally loath to admit that they do not understand what it is all about, just as an experienced woodsman is slow to admit that he has lost his way. Professor Charles McMurry relates that Daniel Boone, when questioned on this point, denied that he had ever actually been lost, but added that there once was a time when for three days he was "very much bewildered."

The task of orientation is peculiarly difficult at present for the reason that our whole social organization is in process of change. This change is due in part to the fact that occupations and modes of living have been profoundly affected by the applications of science. But what is even more significant is the change that is being wrought in our outlook on life. The democratic movement in society is refashioning our conceptions of the individual and of the social order, our standards

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of conduct, and our political, industrial, and religious creeds. It goes without saying that a movement of this sort is intimately bound up with changes in the theory and practice of education.

The discussion in the present book takes this democratic movement as its point of departure. In Part II the attempt is made to show that the various attempts to reconstruct the curriculum are frequently out of close touch with the spirit of the democratic movement, with the result that "reforms" which are urged in the name of democracy and scientific methods of curriculum construction are in fact reactionary and not much more modern than Aristotle. Part III deals briefly with the application of the behavioristic movement in psychology to the learning process, for the purpose of showing that the learning process is artificially simplified in the interests of convenience, a simplification which is mistaken for rigorous application of scientific method and which is inimical to the cultivation of thinking. Part IV is concerned with the elaboration and application of the social ideal implied in the concept of democracy, and tries to show both that this ideal cannot be evolved by any process of scientific fact-finding, and that education should be regarded, first of all, as the expression of a social program.

As a matter of precaution it should perhaps be stated that the criticisms embodied in this volume are in no sense intended as an indorsement of conventional practices in education. To criticize a proposed remedy does

not imply that there are no faults to be remedied. On the contrary, the criticisms have been urged for the reason that the proposed reforms have taken the faults in present-day education too lightly. The reorganization of education that is demanded by the present democratic movement requires a more searching analysis and a keener appreciation of shortcomings than are usually accorded to it.

My sincere thanks are due to Mr. P. T. Orata for assistance in preparing this manuscript for the press, and also to the publishers of educational writings, whether in book form or in journals, for their invariable liberality in permitting (in the interest of free and unhampered discussion of vital questions) repeated and extensive quotation, even in cases in which the content is attacked. For courteous permission to use previously published material I am indebted to the following periodicals: *School and Society*, *School and Home Education*, *Engineering Education*, *American Review*, *Educational Administration and Supervision*, and *The Journal of Educational Research*. Leave to quote the more extended passages has been generously accorded. The selections from Bobbitt's *The Curriculum* and Snedden's *Educational Readjustment* are used by permission of, and by arrangement with, Houghton Mifflin Company, the authorized publishers.

EDITOR'S INTRODUCTION

An unusual activity in the realm of educational theory has characterized the past few years. This activity has been stimulated by several forces. The scientific movement in education has brought forth a vast number of facts and apparent facts which, in their demand for a satisfactory interpretation, suggest strongly the need of a new statement of basic principles. The wide extension of educational facilities, reflected especially in the growth of the high schools, has shown clearly enough that the concept of universal education must be greatly expanded and perhaps fundamentally revised. While the development of modern education has gone hand in hand with the development of democracy, the whole theory of democracy is now sharply challenged, not only by the results of the so-called intelligence tests, but also on the side of practical statecraft, by the apparently striking success of the Fascist programs in Italy and other European countries. As if all this did not provide work enough for the educational theorist, one is confronted (here in America at least) with the shift and flux of moral standards and the growing tendency to discredit authoritarian control of all sorts—accompanied, curiously enough, by the recrudescence of authoritarian

dogma which goes under the name of fundamentalism.

In one important respect, educational theory is well equipped to meet these new problems. Its status as a field of advanced study and research has been firmly established during the past thirty years. Scores of well-trained men and women are seeking and finding a career in this field. They are working industriously, and their contributions in the form of monographs, textbooks, and treatises are already so numerous that the conscientious student finds it hard to keep pace with them.

In another way, too, educational theory is in an advantageous position. Its contacts with school practice are intimate, numerous, and not long delayed. Not everyone who makes a new proposal can have it carried into immediate effect, and even the most plausible reforms almost never are adopted on anything approaching a nation-wide scale. It remains true, however, that school practice to-day is well disposed toward theoretical proposals that promise well.

Obviously the responsibilities of educational theory are coequal with its opportunities. To-day educational theory is in a position of real leadership. It will do well to "watch its step." No longer can it excuse half-matured or needlessly radical programs on the ground that "things are so bad that any change will be a change for the better," or on the charge that "education is so encrusted with tradition that a shock is necessary

to break the shell." Startling and bizarre proposals may not do much harm as long as no one pays the slightest attention to them. It is a quite different matter when change becomes a fashion and when the plaudits of the crowd are the loudest for proposals that break most completely with tradition. The present social situation is already sufficiently unstable. There can be no profit in compounding this instability by making fundamental educational changes unless it can be clearly shown that the ultimate result will abundantly justify the intervening confusion.

Needed, then, at the present juncture is just such a clear-cut and judicially-minded critique of current educational theories as Professor Bode gives us in this book. It is in this type of "theorizing" that educational theory in America has been hitherto lamentably deficient. Glaring inconsistencies among different "reform" proposals have gone unnoticed — and many an ambitious educational "leader" (fearful lest he be considered unprogressive) has given his indorsement impartially to them all! Nor are the inconsistencies within a single movement always clearly seen. More than one of our prophets has, in the first breath, vigorously denied the "transfer of training," and, in the second breath, set forth a proposal that swallows — hook, line, and sinker — the doctrine of formal discipline in its most naïve pattern.

It is not to the discredit of educational theory that its devotees have groped and sometimes stumbled in

their efforts to thread its mazes. To its great discredit would be the failure to recognize these gropings and stumblings as such. To its very great discredit would be the attitude that regards any doctrine or proposal as sacrosanct.

Criticism—keen, incisive, broadly informed, and well-considered—is probably as essential to educational progress at the present time as is research of a constructive character. Happily our author, like the competent philosopher that he is, does not rest content with criticism. We may agree or disagree with his own constructive proposals; but they are there as working hypotheses if we wish to test them.

William C. Bagley

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PART I
INTRODUCTION

MODERN EDUCATIONAL THEORIES

CHAPTER I

THE AMERICAN TRADITION OF DEMOCRACY

When I was a pupil in the public schools and a student in college, I had frequent opportunity to read and to hear rhapsodies on the greatness of man. What was chiefly emphasized was man's control over nature. The railroad and the telegraph had not yet become the commonplaces which they are at present; the telephone was still an object of mystery and of wonder; the self-binder was a thing to admire and to follow around the field; the electric lighting system was beginning to be introduced; and it was even said that electricity generated by water power could be transmitted over a wire and used to run the factories of distant cities. Still later came the triumphs of the automobile and the airplane; and the poet's dream of taking to himself the wings of the morning and flying to the uttermost parts of the earth seemed on the point of fulfillment. Every day brought its tale of wonders, and the future was rosy with the dawn of endless possibilities.

Perhaps the visions that I call up in retrospect are colored by the fact that I was then young and impressionable. But I have sometimes thought that there is an important difference between then and now. The fact that man could control nature still brought with it the shock of novelty and so made a powerful appeal to the imagination. The inventions that multiplied every day were more than labor-saving devices or ministers to comfort; they were a visible sign and symbol of man's superiority over his environment, of his escape from the limitations of space and time. They were a spiritual Declaration of Independence. They bore witness to the fact that man had at last escaped from the ancient bondage of nature; that he is free and the master of the planet. The story of achievement had an irresistible fascination, because it brought the world of song and story into the everyday affairs of life. It captured the imagination, because it suited the times and the conditions. It stimulated the genius and idealism of the American people to the great task of building for itself on this new continent a home and a civilization commensurate with its talents and its aspirations.

It was altogether natural that the idealism of America should embody itself in the history of its inventions. Here were endless stretches of wilderness, to be transformed into the home of a great nation. Here were limitless resources, to be exploited and converted into a common possession. To harness the forces of nature,

therefore, and put them into the service of man seemed a great and noble thing to do. We admired the inventor and we extolled the captain of industry, not because they made it possible for themselves and for others to heap up wealth, but because we felt, in some obscure way, that they had improved and ennobled human life. Their wealth was chiefly a symbol of achievement. We gloried in our efficiency, our initiative and resourcefulness, because the opportunity to express these qualities was what we meant by the doctrine that men have a natural right to life, liberty, and the pursuit of happiness. Foreigners naturally did not understand. They said that Americans were money-mad; that the dollar sign was their only standard of value. As a matter of fact, there is no people on earth that cares less for money than Americans. Ordinarily an American and his money are soon parted. Who among us can hold on to the pennies with the grim determination of the canny Scot, or the thrifty French peasant, or the peasants of other lands, unless it be our dwindling group of Yankee New Englanders? The critic who sees nothing but materialism in America has not seen very far into the soul of the American people.

At the present time, however, if I am not mistaken, we have grown somewhat blasé in the presence of all these wonders of invention. Our youthful enthusiasm has given way to a more sober outlook. It seems possible to detect traces of disillusionment. It takes

more than invention to make a people great. We cannot make out a case for America by quoting statistics on the number of miles of railroads that we have, on the number of bushels of corn and wheat that we produce, or on the increase of our population; we don't prove anything by showing how high our skyscrapers are, or how fast we can turn out automobiles, or how Sears & Roebuck can supply anything, from darning needles to six-room cottages, by parcel post. Why should the foreigner be impressed by all this hurly-burly of physical activity? He senses a certain lack of spiritual background. We have no age-long traditions to nurture us in our childhood; we are all of us immigrants, at most a few generations removed. Our national heritage may easily seem poor in comparison with that of other nations. We do not have the sense of manifest destiny and of the white man's burden that is the heritage of the Englishman; we do not have a creed of national *Kultur*, like the Germans; we do not have the passionate race loyalty of the Japanese. We may not wholly approve of these other nations, but they undeniably have sources of inspiration which have it in them to give to life the dignity and nobility of consecration. The old Latinist who said, "I am a Roman," expressed in these simple words a whole program of life. He felt himself in the possession of a sustaining ideal, which made him superior to chance or circumstance. What has America to offer? What does it mean to be an American?

A question of this sort is apt to be embarrassing. What has America meant to the world anyway? What is her distinctive contribution to the spiritual wealth of the twentieth century? We have achieved no preëminence in the realm of science, or art, or literature, or diplomacy; almost everything that we do in these fields is done better abroad. Our politics are notorious, our lawlessness is a by-word, our illiteracy record is by no means creditable. It is a familiar saying that the Greeks gave to the world philosophy, art, and literature, that the Romans gave law and government, and that the Hebrews gave a sense for righteousness. Are we ready to invite comparisons by pointing out that we gave sewing machines and tin Lizzies? Are we willing that the minds and hearts of our children should be fashioned according to standards of production and efficiency?

Recent events have made it only too clear that the world cannot be saved by machinery alone. Power over nature does not in itself make men more human; it merely makes them more terrible. It might be argued with some plausibility that we know too many of the secrets of nature already. Science is too dangerous a tool for the sons of Adam. If we increase our knowledge of science, we do so at great risk. So far as we can see at present, the only thing that saved the world from utter annihilation in the recent war was ignorance. If science and invention had been fifty years farther along, the fighting nations would

have made a clean job of it, like the two bulldogs which, according to the story, started chewing each other up, so that finally nothing was left of the combatants except the tails. Fortunately, the embattled nations did not quite know how to achieve such a result; but, if we may trust what we hear, they have made up their minds that there shall be no such failure next time. We hear hopeful talk already about airplanes that can be loaded with explosives and directed against an enemy by wireless; and about gas bombs that can wipe out a whole city. We are not quite ready yet, to be sure, but with just a little more control over nature our civilization will be in a position to commit the most elaborate and most effective suicide ever known to history.

As I have already intimated, however, machinery and organization and efficiency are not always esteemed and admired for their own sake, even here in America. They are often the symbols of fine aspirations and noble ideals. America, too, for all its youth, has a great national tradition. As Lincoln said, this nation was conceived in liberty and dedicated to the proposition that all men are created equal. We may not think much of the democracy that was advocated by the founders of the Republic. To them it meant merely political democracy, the right to have a voice in their own government, and it was a right for white men only. But even so, as a doctrine and as an experiment it was more radical than the Bolshevism of

our own day. It marked a new departure in government, and it made America the dream of the persecuted and the downtrodden all over the world. Moreover, the meaning of democracy has broadened and deepened with the years. In the course of time it was made to include all human beings, without regard to race, color, or previous condition of servitude. It was made to include the right to economic opportunity, and the right to extensive educational opportunities. The whole drift of things has been toward the interpretation of the right to life, liberty, and the pursuit of happiness in the sense that we are members one of another, with a common interest in the cultivation of a common life. No one, not even the humblest citizen, is to serve simply as a hewer of wood and a drawer of water; but everyone is to be recognized as a member of a great brotherhood, and to share in the opportunities, the achievements, and the aspirations which are our common possession. There are to be no peasants, no serfs, as there are no hereditary privileges and titles, because each citizen is to rise to the full stature of his spiritual manhood even as a son in his father's house. So runs our national creed. It is a creed that is based on faith in the common man, a faith that does not shrink from comparison with the glory that was Greece or the splendor that was Rome.

To the average American, democracy ranks with the eternal verities. But if he is questioned as to the meaning of the democracy in which he believes so implicitly he soon becomes restless and incoherent.

Perhaps the word suggests rule by the majority and the right to vote. Or it may recall the legend which depicts Jefferson as riding up to the capitol and tying his horse to the fence on the occasion of his inauguration as President of the United States. Or it may symbolize the type of person who slaps his neighbor on the back and calls him an "old horse." "Mother, you are a good old scout," said a soldier in a letter from the front, a form of language which, as his mother remarked, was "so democratic." Again democracy is vaguely identified with personal liberty and equality of opportunity. Democracy, it seems, is a thing that expresses itself in many forms, but is not completely identified with any or all of them.

Our average citizen, then, sees at best as in a glass darkly and cannot report with precision on what he sees. This inability to define, however, is by no means incompatible with a deep conviction that democracy is something splendid and that the whole world must be made safe for it. Nor is this conviction without its justification. A person who has been nurtured in a great tradition can sense something of the mental attitude that has been fashioned by the great events and the great men of the past, even if he cannot put it into words. He may call this heritage democracy or he may call it liberty; he may stress either government by the will of the majority or the right of the individual to live his own life, without undue interference from others; he may point either to the absence of special

privilege, of artificial pomp and circumstance, or to the fact that every native-born citizen may aspire to become President. In every case the underlying idea is the same, with certain variations of emphasis. It is the idea that democracy, like Boston, is a state of mind, that a democratically organized society seeks to protect the interest of all its members through joint responsibility and joint control.

All great ideals are exposed to the danger of strangulation by the very institutions and practices which they themselves have created. In the course of time these institutions and practices tend to impose themselves as ends instead of means, and they begin to demand a blind, half-superstitious reverence. We need to remind ourselves, on occasion, that the great names of our history stand for something very different. The name of Benjamin Franklin tends to recall the teachings of Poor Richard's Almanac, full of wise saws and the spirit of Yankee shrewdness and thrift. But Franklin had a contribution to make to the life of the young nation that was of far greater importance. It was Franklin who by precept and by practice taught his fellow countrymen that the Sabbath is made for man and not man for the Sabbath. "Vicious actions," he says, "are not hurtful because they are forbidden, but forbidden because they are hurtful, the nature of man alone considered." In other words, a social organization is democratic in so far as institutions and practices are evaluated by their effects, "the nature

of man alone considered." It is aristocratic in so far as the well-being of individuals is subordinated to some further end. Emerson tells us that "whoso would be a man must be a nonconformist," and he even says that "good men must not obey the laws too well." And Lincoln warns us that "this is a world of compensation, and he who would be no slave must be content to have no slave. Those who deny freedom to others deserve it not for themselves, and under a just God cannot long retain it."

These men were very far from being anarchists. They were too eminently practical to overlook the fact that liberty is law. But they also had a realizing sense that law is the expression of achieved adjustment, whereas life demands constant readjustment. "New occasions teach new duties," and when these new occasions arise, the loyalty of yesterday may become a stumbling-block and a rock of offense. The old loyalty then becomes the enemy of the new. That was why Franklin was not content to accept loyalty to the king as final, why Emerson was unfriendly to the Fugitive Slave Law, why Lincoln would not accept the decisions of the Supreme Court as an unimpeachable guiding principle of his political conduct. If we have anything to learn from the "lessons of history," it is precisely that the issue of aristocracy versus democracy is simply a phase of the perennial struggle between established habits and vested interests on the one hand and the demands of an expanding life on the other.

When democracy is identified with established forms, it has ceased to be democracy. The letter killeth; it is the spirit that maketh alive.

The essential thing, then, about democracy is its attitude. To identify democracy, as Bryce does, with "the rule of the whole people expressing their sovereign will by their votes," is to invite the danger of accepting the form for the substance. Forms are important only in so far as they become a means for cultivating a democratic attitude. In so far as the franchise, for example, fosters the disposition to consider public questions from the point of view of all the interests concerned, and to assume personal responsibility for the public weal, it becomes an embodiment of democracy. But in so far as it becomes simply an expression of personal advantage or of class interest, it is inimical to democracy. Again, our efforts to secure equality of opportunity through education are in the interests of democracy in so far as they promote the realization that individual opportunity is linked up with social responsibility. If this realization is not secured, we are simply training up prospective pirates and cutthroats. A true democracy meets the present occasion and the present duty in such a way as to provide for adjustment to new occasions and new duties.

The discussion, so far, has attempted to give prominence to the elements that must be recognized in an attempt to give a definition of democracy. These elements are (1) that our tradition of democracy is an

embodiment of the demand for the fullest possible expression of native capacity in the individual, (2) that it is a larger and more vital thing than any set mode of conduct through which it may have found expression in the past, (3) that this expression of native capacity must come through coöperation based on mutual recognition of interests and through progressive modification of institutions and practices. Democracy, then, may be defined as *a social organization that aims to promote coöperation among its members and with other groups on the basis of mutual recognition of interests.*

This "mutual recognition of interests" points to the fact that democracy means a progressive humanization of the social order. Democracy is never a finished thing, but a process of continuous readjustment in the direction of a more extensive mutual recognition of interests. Society as it exists all about us tends to fall into groups or cliques. We have employers and labor unions; we have manufacturers and farmers; we have railroad interests and shipping interests; we have producers of coal, producers of lumber, and producers of wool; we have divisions based on color, on religion, on party affiliation, on profession and occupation, in endless diversity. As a result life is largely a wrangle and tangle of conflicting interests. The manufacturers want high tariffs, the unions want high wages, the railroads want high rates, the teachers want high salaries, and everybody wants relief from the high cost of living. It is easy enough for a person to appreciate

the standpoint and arguments of his particular group. But if he has not been educated to see anything outside of his particular "line," his education will not qualify him to adjust the conflict of interests. It may make him merely stubborn and bull-headed. Our national safety lies in the general intelligence of our citizens, which means the ability and the disposition to understand both sides of such questions and to adjust them in the light of the common good.

The problem of humanizing the social order, therefore, is tied up with the problem of humanizing the curriculum. It would be natural to suppose that the American people would seek to enrich and perpetuate the concept of democracy through its public educational agencies. But, as a matter of fact, we have done so only in a random and thoroughly inadequate fashion. Tradition has been too strong. Our educational theories and practices were borrowed from other peoples; they were not reconstructed and revitalized by a philosophy of democracy, so as to make them conform to the spirit and ideals of the nation. We continued the Aristotelian conception of culture, which was not democratic but aristocratic. This conception originated in a society founded upon slavery, and it divided people sharply into a class of producers and a class of consumers. Culture and practical affairs were kept carefully separated in different compartments. The studies in curricula based upon this tradition were supposed to have a cultural quality in

proportion to their uselessness in practical life. Pure science was somehow more noble than applied science, and the B.A. degree was superior to the degree of B.S.

In a country like ours such a conception of education was bound to work mischief. The persons who received a cultural education were not adequately prepared for leadership in a democratic society. In our political life the absence of educated leadership has been conspicuous. In what we may call our "polite society" there was, at least to all appearances, much more admiration of the manners and customs of the aristocracy of Europe than of our American democracy. On the other hand, those who were educated for productive occupations were equally one-sided. They had been trained into hard-headed, Philistine modes of thinking; they had none of the mellowing, humanizing influences that come from a broader outlook upon life. They prided themselves on their practicality, on their shrewdness, on their efficiency. In many of the ordinary relations of life these men were often kindly, generous, and even sentimental, but they simply could not understand life, except from the point of view of business. They were not lacking in capacity for idealism; they simply had not been taught the meaning of democracy so as to be able to apply it in their everyday affairs.

As a result of all this the world of commerce and industry was pitched on a plane that reflected no credit on the American people. The idea that business

had an intimate connection with democracy scarcely presented itself as a serious possibility. The sole purpose of business was to make money, which could then be spent for the cultivation of the higher things of life. We have seen over and over again the spectacle of men acquiring a fortune by cutthroat methods and then spending it on all sorts of enterprises intended for the benefit of mankind. These men frequently showed no particular interest in the welfare of their employees, and no pity at all for their competitors. Yet they built colleges and hospitals and philanthropic institutions of all sorts, because they were sincerely desirous of doing something for the well-being of their fellow men. Such conduct simply passes all understanding, if we do not view it in the light of our educational practices. These men were like the man in Russell Conwell's lecture on Acres of Diamonds, — the man who roamed all over the face of the earth in search of a fortune, not knowing that the house in which he had lived and from which he set out was built on a diamond field of untold wealth. If the energies of these men had been directed toward the humanizing of industrial conditions, what a different world this would be to-day!

The same paradox greets us in the fields of international relations. No country is more generous than America when there is famine or other affliction elsewhere; and when a great principle is at stake we give spontaneously of our blood and treasure without stint. But this idealism vanishes at once when we pass to a

consideration of commercial relations. It is no accident that nations, like individuals, show their worst side in their business dealings. If we were to judge men by these relations alone, we should be tempted to the pessimistic conclusion that the human race is made up of bandits and pickpockets. Nothing can be more depressing than its record of diplomatic chicanery and selfishness. But is this really to be wondered at? Is it not the natural and inevitable result of the system of education that has obtained in the past?

We have faith that education can humanize the social order. But the problem is full of difficulties. On the one hand the democratic movement has meant the liberation of the individual through the development of his interests and capacities. In terms of education this has meant emphasis on individual differences, on individual initiative, on freedom and self-expression. But these things are not ends in themselves; they are valuable only in so far as they make for the enrichment of personal and social life. If they are misdirected, they result in "soft pedagogy," in the encouragement of whim and selfishness, or perhaps in a one-sided development of vocational interests. When this happens, the idea of democracy miscarries and the evils of the past are perpetuated. But on the other hand democracy has meant a wider social consciousness, a heightened sense of responsibility for the common weal. This aspect of democracy is reflected in the educational emphasis on "social" values. But this

emphasis may easily result in an evil tendency to subordinate the individual to society, to train him in the passive acceptance of ideals and standards. This again means that democracy has been defeated. Teaching in patriotism, when conducted on this level, prepares for intolerance and heresy hunting; just as "freedom" in education may become synonymous with caprice and license. In some sense or other democracy has always meant the right to freedom and self-determination. "But it is equally true that unless democracy can find a place in its theory and practice for discipline, duty, and sacrifice, it will be so seriously handicapped that its ultimate success will be a matter of the gravest question. Whether we like it or not, we cannot deny that, in the history of the race, anything that even remotely resembles freedom (freedom not only from personal thralldom, but freedom from want, dread, fraud, and superstition) has been a conquest, not a gift. In a very real sense education must reflect in each generation this element of struggle and conquest."[1]

Freedom, as Bagley says, is a conquest, not a gift. Moreover it is a conquest that each generation must make anew. The genius of democracy expresses itself precisely in this continuous remaking of the social fabric. With regard to curriculum construction it requires, first of all, a type of education that enables the in-

[1] Bagley, W. C. — *Determinism in Education*, p. 160; Warwick and York.

dividual, not only to adapt himself to the existing social order, but to take part in its remaking in the interests of a greater freedom. Many of the educational movements of the day are at bottom unfriendly to the ideas of democracy because they center on the ideal of a static rather than a changing social order. We have not, so far, managed to translate the idea of democracy into clear-cut educational theory and practice. There is no more urgent problem on our educational horizon at the present time than the clarification of the meaning and implications of democracy. This is necessary if the promise of our earlier history is to be fulfilled and if education is to prove equal to the responsibilities that have been placed in its care.

Questions and Exercises

1. Give facts to show how the concept of democracy has taken on new meanings in the course of American history.

2. "It has been claimed that there are two million laws in the country. At any rate the number is constantly increasing, which inevitably means that personal liberty is decreasing all the while. Since democracy is bound up with liberty, the trend of things is clearly away from democracy." Discuss this.

3. What does it mean to say that the essential thing about democracy is a certain attitude?

4. Give illustrations to show what is meant by the definition of democracy on page 14.

5. Explain the meaning of the word "human" in the following statement: Man is not born human, but he becomes human through a process of development.

6. What is the relation between the extension of educational opportunities to all and the ideal of democracy?

7. What difference does the concept of democracy make in the teaching of any given subject in the curriculum? Illustrate.

8. Discuss the statement: The school is the laboratory of social philosophy.

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PART II

THEORIES OF CURRICULUM CONSTRUCTION

CHAPTER II

THE NEED OF ORIENTATION IN CURRICULUM MAKING

A QUARTER of a century ago John Dewey published a pamphlet entitled *The Educational Situation,* which dealt in the main with the curriculum problems of that day. As measured in terms of educational history that time now belongs to the remote past. A great deal of water has gone over the dam during the twenty-five years that have elapsed. The scientific study of education was then in its infancy; it is now approaching maturity. A great body of fact has been assembled and organized, and methods of inquiry have been perfected. The whole subject has developed with gratifying rapidity and our perspective has changed accordingly. Yet, in spite of all this advance, Dewey's essay is still a reasonably accurate statement of the educational situation. The mills of the gods grind slowly after all. The central problem of the curriculum reaches down too far into the structure of our civilization to be changed overnight.

It is sufficient for present purposes to mention briefly a few of Dewey's contentions. His central thesis is that educational problems and movements are a reflection of social changes. For a long period the education of the great mass of the population consisted of little

beyond the three *R*'s. It has been stated that as late as the seventies or eighties of the nineteenth century the average amount of education for adults in this country was equivalent to the work of the first three grades. Since that time education has changed greatly both in quantity and in quality. "The democratic upheaval," says Dewey, "took shape not merely in a demand for political equality, but in a more profound aspiration towards an equality of intellectual and moral opportunity and development."[1] A new social order is in the making, which makes it necessary to develop a new system of education. We are shifting from an aristocratic to a democratic level. Processes of this kind are necessarily slow, in spite of all the surface changes that are going on, and for this reason the deepest problems of education remain substantially the same over long periods of time.

The result of all this has been a need for an extensive reorganization of the schools. In the elementary schools the teachers who sensed the drift and the demands of the times became "anxious to eliminate from the rudimentary courses all artificial and unproductive sections, and at the same time they were eager to bring their pupils at an earlier age into contact with the rich new material which modern science has contributed as guides to industry and life."[2] But the

[1] Dewey, John — *The Educational Situation*, p. 58; University of Chicago Press.

[2] Judd, C. H. — *The Evolution of a Democratic School System*, p. 72; Houghton Mifflin Company.

change was not confined to the introduction of new material into the curriculum. Our general perspective underwent a change. So long as the curriculum consisted mainly of the three *R*'s the emphasis was all on discipline, thoroughness, and concentration. But now that we have become concerned about the enrichment of life our talk runs to such topics as interest, purposeful activity, and knowledge of the world in which we live. This new attitude naturally reacts on both content and method in the teaching of the old-line subjects, as, for example, when it is proposed that the whole curriculum be organized on the basis of the project method.

In the high school likewise there sprang up a need for reorganization. At the outset there was a sharp contrast between the elementary and the secondary school. In the former the basic concern was with the three *R*'s; in the latter the influence of the classical tradition made the emphasis fall on Latin, Greek, and higher mathematics. The demand for "rich new material" brought about a tremendous widening of the curriculum. The natural sciences, the social sciences, and modern languages secured a foothold; likewise courses in industrial arts, home economics, agriculture, commercial subjects, and the like. But this enlargement of the curriculum did not give unity and continuity to the school system. It simply brought the classical ideal of culture in juxtaposition with the ideal of "practicality." Neither of these ideals expressed the spirit of the democratic

movement. The development merely set the stage for the development of a new educational ideal.

This, in rough outline, is the situation portrayed by Dewey. We have a problem of the curriculum, not merely because outward conditions have changed, but because education has started to move in a different direction. At the bottom of the scale, in the elementary school, we meet the demand for "enrichment of life," which finds expression in the introduction of subjects like music, drawing, and nature study. At the other end of the scale, in the high school and college, we find represented all sorts of vocational or quasi-vocational interests which were formerly taboo. These interests are embodied in the various special curricula into which high school and college offerings are being differentiated. These mark an unmistakable growth in the conviction that the higher forms of education must prepare more or less directly for participation in the activities of society.

This situation sets our problem, which appears to be at least three-fold. In the first place we have the problem of reorganizing the elementary school so as to secure realization for the rather vague demand for "enrichment of life." Secondly there is the problem of joining the elementary school with the high school in such a way as to secure a unified and continuous system of education, and thirdly we must deal with the problem of organizing the various curricula so as to prepare for membership in a democratic social order.

Back of all this, however, is still another task. The development of education has brought with it an unsettlement of standards. We used to know quite definitely what was meant by such terms as "cultural" and "practical." But now the things represented by these terms have been permitted to mix. We give the B.A. degree for work that is aimed more or less directly at a professional or vocational career. In the elementary school we make the three *R*'s cultural subjects by teaching them in such a way as to cultivate certain appreciations. For a long time now we have been moving toward the view that the practical and the cultural must be combined in something which we call "social" education. The democratic movement clearly involves a rejection of the other educational ideals and the substitution of a new ideal. The general drift of things has unquestionably been in this direction. An intelligent approach to the problem of curriculum construction, therefore, would seem to require, first of all, that we try to clarify and formulate this ideal of social organization which is implicit in what Dewey calls the democratic movement.

One reason certainly for the great influence of Dewey's educational theory in this country is that this theory made a serious attempt to understand and to clarify the meaning of the democratic movement. In Dewey's theory enrichment of experience and preparation for membership in a democratic social order are brought together in a unified program. For Dewey

all educational thinking leads back to the meaning of "social," just as all roads lead to Rome. Education from this standpoint becomes a process of initiating the child into spiritual membership in society. Consequently the school must be patterned after real life, with such modifications and corrections as are necessary to expedite this process of initiation. In a school of this sort activities go on which have a direct and obvious bearing on practical interests and which facilitate growth in social power and insight. Dewey's own experimental school and numerous attempts elsewhere to organize education along these lines have made the idea fairly familiar. Enrichment of experience, on this basis, centers on the cultivation of insight into the meaning of our social environment. Special interests, whether vocational or not, take their place in this scheme. They, too, become a basis for a wider understanding of life and for an increased sense of social interdependence.

This conception of education, when followed out in its various implications, is revolutionary in character. There is nothing very startling perhaps in the idea of enrichment of experience or in the idea of training for membership in a social order. In one form or another these ideas run back to the beginnings of educational theory. But the turn that is given to them by Dewey endows them with a new meaning. A school of Dewey's kind is, first of all, a miniature social organization which is constantly widening its

own understanding of itself. It maintains a constant attitude of inquiry and experiment and coöperation. Its rules and regulations, its discoveries and methods of procedure are constantly subject to revision. Its conceptions of duty and discipline and citizenship and the like are all derived from an appreciation of intimate social relationships. And just because the contact with the outside world is so intimate and all-pervading, the child learns to extend this conception of associated human living, this general attitude, to society as a whole. In other words, social education, in Dewey's sense, endeavors (*a*) to make vocational interests, or special interests of any kind, a means for participating in all sorts of other social interests, and (*b*) to foster the attitude that social organization in general should be judged in terms of serviceableness in promoting a common life. This kind of education is intended to prepare for intelligent sharing in social organization in the light of changing conditions.

As far as I know, this result has never before been achieved or even aimed at on any considerable scale by any educational system. Education, speaking by and large, has always made much of handing down things ready-made. It has always given at least tacit recognition to the principle of divine right, in the sense that certain beliefs were fenced off and thus protected against criticism. It made social change difficult if not impossible, except by recourse to violence, because it failed to get over a realizing sense that the whole

adventure of the human race on this planet *is* an adventure, an experiment, and that our institutions, our beliefs, our practices must all be held subject to revision as we go along. Yet something of this sort is what we mean by democracy. In a democratic scheme the social organization is not a device for thwarting and stunting the individual, as in the days of Rousseau, but for furthering his development without assignable limit. In providing for flexibility of social organization education becomes, not only a means for conserving the experience of the past, but also an agency for progress and reform.

My purpose just now, however, is not to make a plea for Dewey's theory of education. For present purposes it is sufficient to regard this theory as only an illustration of an educational system that aims at enrichment of experience by the cultivation of social insight. It recognizes the fact that the educational system which we inherited was devised under conditions and for purposes which have passed or at any rate are in process of passing. We no longer have a rigidly stratified society, and so we are ceasing to regard education as a means of preparing persons for a predetermined social and vocational status. Moreover, the tremendous industrial and economic changes that have taken place, owing to the applications of science to the problems of everyday life, have placed a new emphasis on the importance of understanding the social life by which the individual is surrounded and of

which he is a part. The social structure is no longer an open book. It is so endlessly complicated that social insight apart from intensive study is an idle dream. Consequently the educational problem to-day is different from what it was in the past.

This shift of emphasis has met with widespread approval. The term "social" has become one of the catchwords of the day. But it has not solved the educational problem; it has rather set going a variety of movements which have bred uncertainty and confusion and which make imperative the need of critical appraisal. While it is granted on all hands that education to-day must look more closely to social needs and interests, and also, as a corollary to this, that education must be based more directly on the interests and capacities of childhood, there is room for the misgiving that present-day education is not always sufficiently concerned to protect the approved values of the past. We hear a great deal, for example, about "child purposing" and about individual differences, without a sufficiently counterbalancing emphasis upon the need of developing and directing the activities of pupils toward a preconceived end. "With young people it is only in slight degree that problems can be assigned. Assigned problems as a rule remain teacher's problems; they do not thereby become pupil's problems. Purpose cannot be assigned." [1] One some-

[1] Kilpatrick, W. H.—*Foundations of Method*, p. 349; The Macmillan Company.

times gets the impression that if we can only succeed in arousing the spontaneous and wholehearted interest of pupils in school activities, a beneficent Providence will take care of the results. As against such a simple faith it is necessary to insist that it is the duty of the schools to transmit what is really valuable in racial experience so as to insure continuous progress. We are not entitled to assume that childhood will grow automatically into wisdom and power, as the acorn grows into the oak, if we only manage to convert our educational agencies into an efficient servant of its "felt needs." There is no pre-formed sage and saint in the nature of the child, needing only to shed its wrappings in order to be clearly perceived, Rousseau to the contrary notwithstanding. Education is a process of guidance or direction, and consequently a social program of some sort becomes an indispensable need.

The same problem meets the eye when we turn our attention to another tendency of the day. As one writer puts it: "Education is primarily for adult life, not for child life. Its fundamental responsibility is to prepare for the fifty years of adulthood, not for the twenty years of childhood and youth."[1] Here the need of a program or aim is put in the foreground. But our very sensitiveness to the demands that modern life make upon the individual may easily induce us to center our attention too exclusively on the need of

[1] Bobbitt, F. — *How to Make a Curriculum*, p. 8; Houghton Mifflin Company.

preparing pupils for the specific vocational and civic duties of adult life. That is, we may be tempted to slur over the fact that in a democratic society it is quite as important to prepare individuals to meet *changing* conditions and, moreover, to have a part in bringing about desirable changes. An outstanding trait of modern life is precisely its fluidity. The inventions and world events of the past half century have revolutionized our opinions and modes of living, and there is no reason to think that the future will be any more stable than the past. In proportion as we recognize this fact, the emphasis tends to shift from future to present living. Considerations of this sort again throw us back on the need of clarifying our ideal and of transmitting our racial experience in such a form that it will be of maximum service in dealing with new problems and in creating new aims and new opportunities as we go along.

A casual survey, then, of the present situation seems to reveal two outstanding tendencies that are of crucial significance for curriculum construction. One of these is primarily concerned with the "enrichment of experience," and it is easily betrayed into a sentimental reverence for childhood; so that any sort of coercion or pressure is frowned upon and the pupil is virtually left to make his own curriculum. The other tendency is controlled throughout by the purpose of preparing for the activities of adult life, but in its zeal for this end it is prone to overlook what may seem like a paradox, viz.,

that one of the primary objectives of education is to prepare for activities or duties that cannot be foreseen at the present time. The characteristic trait of a democratic, as contrasted with an aristocratic, social order is precisely that it anticipates and undertakes to facilitate changes of a certain kind. In an aristocratic society the fundamental ideal, as regards the relations of individuals and of classes, is that of fixity rather than change. Consequently an over-emphasis on training for specific and known duties may easily give a rigidity to society akin to that of a military organization, in which the great majority, at any rate, are not expected to look beyond certain prescribed duties. The genius of democracy lies in the fact that it makes the organization of the moment a means to the creation of new purposes and new duties, which in turn involve new forms of organization. Hence the problem of humanizing the curriculum is a problem of organizing subject matter in such a way as to provide for the progressive release of human capacity.

This brings us in sight of a third standpoint or educational creed, which demands consideration. There is considerable justification for the view that all this emphasis on "pupil activity," on the one hand, and a hazy "practicality" on the other, has operated to make present-day education an intolerably superficial kind of thing. To advocate curriculum construction on the basis, not of subjects, but of pupil activity, easily results in neglect of logical organization. We seem

to be in danger of losing contact with the old-fashioned ideal of scholarship, of the pursuit of knowledge for its own sake, of an intellectual seriousness that extends beyond the pleasant employment of "leisure hours." In the prevailing reaction against abstract and formal organization of subject matter, the insistence on the need of cultivating "purely intellectual interests," without regard either to further applications or to passing whims, is apt to be regarded as an exhibition of reactionism. Whether it is in fact reactionism or not depends on the manner in which the realization of this aim is sought. If we set our faces against the innovations that seek to secure a more generous recognition of pupil interest or of practical social efficiency, then indeed the position becomes standpatism or Toryism. But if our concern is simply to conserve what is of permanent value in the past, then this insistence becomes indispensable for genuine progress. It is true, without doubt, that education in the past was too much disposed to deal with subject matter without reference to its bearings and applications. It presupposed intellectual interests that were possessed only by the select few. It may plausibly be argued, however, that its chief mistake in this connection was not in emphasizing these interests but in proceeding as though these interests were present at the start, instead of aiming to develop them as an end-product. It is a serious mistake to go to the other extreme by proceeding as though the development of intellectual interests

could never be achieved or must at most always remain a more or less incidental affair. It seems to be taken for granted that the organization of knowledge into a system must always be for some practical end. "Against this tendency [of traditional education towards system-building] the newer methods protest that mere system in teaching, system for system's sake, is chiefly a scholar's idol."[1]

A more detailed discussion of the nature and need of such "purely intellectual interests" will be presented in the next chapter. The point just now is that we are still in the woods. We can indeed point to solid achievement. There is, first of all, a dawning sense that education must be linked up with a program of social regeneration. Secondly, we have become sensitive to the inalienable right of childhood to achieve enrichment of experience. But this acknowledgment brings us face to face with a variety of divergent and apparently conflicting tendencies. We find ourselves assailed by various claims, all of which seem legitimate, but which have the appearance of mutual incompatibility. It is necessary to take into account such divergent considerations as the interests of childhood, the vocational needs of life, and the cultivation of the "purely intellectual interests" which come into play when we become absorbed in constructing a logical organization of subject matter. Most people would grant that all

[1] Thorndike, E. L. — *New Methods in Arithmetic*, p. 86; Rand, McNally and Company.

these considerations are worth while, although they may differ in the relative importance attached to each of them. These different values must be adjusted somehow. This problem of adjustment, it may be noted, is not a problem that concerns any of the sciences. It is a problem of a distinctive sort, since it deals primarily with values or the formulation of a program and not with the discovery and verification of fact. It is a problem of educational theory or philosophy of education.

Attempts to provide a guiding philosophy have not been lacking, although some of these undertakings are offered, not in the name of philosophy, but of science. It is claimed that the procedure employed by science in the discovery and verification of fact can be used to set up educational standards. In view of the amazing achievements that have been made possible in so many fields by the use of scientific methods we can afford to be tolerant toward this enthusiasm, even when it is misdirected.[1] Nevertheless, it would serve no useful purpose to disregard the fact that this passion for weighing and measuring and diagraming can result in nothing but harm when it takes for granted that educational objectives are to be found in the same

[1] How far this enthusiasm may lead is indicated by such statements as the following: "Nothing is proved until it is measured and everything that exists can be measured." Wiggam, A. E. — *The Fruit of the Family Tree*, p. 82; Bobbs-Merrill Company. "Whatever exists at all exists in some amount." McCall, W. A. — *How to Measure in Education*, p. 3; The Macmillan Company.

way that we find a median score or the most frequent errors in grammar or in addition and subtraction.

The most important educational problem to-day is the problem of direction. There have been many changes in education owing to the pressure of the changes that are going on outside of the schoolroom. When educational changes take place under such conditions it may be taken as a sign that the schools are behind the times. The schools then become, so far forth, a retarding influence. They obstruct the changes leading to a more genuinely democratic form of social organization. Significant progress does not consist in the refinement of methods to do the old things better than they were done before, but in the creation of new standards, so that the schools may reinforce the desirable social changes that are already going on. The danger in the enthusiasm for the "scientific" determination of objectives in education lies in the fact that it obscures the need of breaking from the old standards and old ideals. The discussion in subsequent chapters will undertake to show that the appeal to science in this connection easily becomes a cover for reactionism in education. If the curriculum is to be genuinely humanized, it must be based on social vision and program, so that the schools of the future will anticipate the spirit and outlook of the social order that is to be.

Questions and Exercises

1. Explain why the reorganization of the curriculum demands not only the addition of new material but a different organization and treatment of the subjects already in the curriculum. Illustrate.

2. Show by illustrations why the development of economic, industrial, and political life has made it more necessary than formerly to stress the cultivation of social insight in the schools.

3. It is asserted, on the one hand, that education should concern itself with present living; and, on the other hand, that the business of education is primarily to prepare for the life of the adult and not for the life of childhood and youth. In what sense may it be said that both views are true?

4. In view of the present emphasis on the social character of education, would you say that education does, as a matter of fact, make the individual a social being or that it *should* make him a social being? Illustrate.

5. Point out what you consider the danger in a one-sided emphasis on either pupil interests or vocational ability.

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CHAPTER III

LOGICAL AND PSYCHOLOGICAL ORGANIZATION OF SUBJECT MATTER

In the preceding chapter the attempt was made to show in what way the present educational situation embodies both a reaction against an earlier mode of thinking and a groping for a new social ideal. The notion that education is intended primarily to train people for "the places and stations to which Providence assigns them" has grown distasteful to us. We have learned to think that the state of life of any given person is not a matter to be determined antecedently by the accident of birth, but by the quality and development of his natural capacities. The trend of the modern world is in the direction of flexible rather than fixed social organization. Present-day education, accordingly, should be regarded both as an expression of this trend and as an agency for its progressive realization.

The readjustment, however, that is required in our educational theory and practice is a matter of some difficulty. It is relatively easy to lay down an educational program when we know in advance for what sort of duties and tasks it is necessary to prepare.

But the notion of democracy requires a system of education that will prepare for duties and tasks that cannot be foreseen, since the social organization is expected to change indefinitely. Viewed from this standpoint the business of education appears to involve a variety of divergent and even conflicting demands. In the first place, it must be recognized that the older forms of education were by no means wholly wrong in the notion that people must be trained for specific duties and obligations. Our modern life has become so complicated and technical that the need of vocational training has become more imperative than ever. We may rightfully argue that traditional education proved itself inadequate as judged by the standard of modern demands and needs, but we cannot quarrel with it on the ground that it was too much concerned with considerations of vocational efficiency. We consider it inadequate, partly because the vocational needs of the masses have changed so vastly and partly because we are giving up altogether the idea of educating for the vocation of being a "gentleman" in the historic meaning of the term.

Having made this concession, however, we seem to encounter certain limiting considerations. A second demand that is made on education nowadays is that it must avoid the danger of sacrificing the individual to his job. This was done more or less ruthlessly in the old days when the individual was not expected to depart very far from the type of vocation and general mode of

living of his parents. Such a system was likely to convert an indefinite number of "mute inglorious Miltons" into an inferior kind of cobblers and carpenters. A consideration of this sort tends to make the emphasis shift from training for vocation to the discovery of capacity. In proportion as such a consideration controls we become inclined to make school activities voyages of exploration and to take our cue from pupil interests rather than from vocational needs. Since this period of exploration extends properly over the whole time that most children spend in school, the problem of reconciling this demand with the demand for vocational efficiency becomes a serious one, and particularly so when we lean over backwards in our desire to avoid the exercise of compulsion in the form of set tasks and punishments.

This leads us to a third demand. Even the most ardent advocates of vocationalism are disposed to concede that education must do more than develop efficiency in a given vocation. The vocational training must have a certain background so as to provide for adaptation and growth. Similarly our prevocational education is expected to do considerably more than to reveal the pupil's preferences and capacities. When the choice of a vocation is finally made the pupil is supposed to have a fund of information and training that will be of service to him in his more specialized activity. In other words, the pupil is expected to get at least a sort of general introduction to the organized

experience of the race as represented by the various subjects in the curriculum.

How are these various demands to be reconciled and combined into a unified program? There is reason to think that much of the onesidedness and confusion in our thinking could be eliminated by a more careful consideration of the nature and function of what we sometimes call the "logical organization of subject matter." It is not claimed that such a consideration will furnish a solution to every problem, but it is indispensable for the formulation of an adequate educational program. Many of our troubles are due to the fact that we have reacted indiscriminately against the abstract, lifeless organization of subject matter which we are becoming accustomed to call a "purely logical organization."

The meaning of this term can easily be exemplified by an inspection of textbooks, particularly those of an earlier day. A physicist, for example, is tempted to begin an exposition of physics with definitions of such concepts as matter, force, and energy; while a historian naturally follows a chronological order which is designed to trace out, step by step, the causal connections by virtue of which the present grew out of the past. This statement is not intended to imply a criticism; there are certain purposes for which an organization of such a sort is proper and required. The point just now is that such an organization is not intended primarily to furnish a record of racial experience, but rather to

present what is in a sense an artificial arrangement of the fruits or results of racial experience. In a cut-and-dried account of physics the "human" element is obviously left out entirely; we learn nothing of the trials and disappointments that were involved or of the hopes and issues that were at stake. Stated in its lowest terms, what we get is a sort of catalogue of results, together, it may be, with a marshaling of data to show that the inferences are sound. Less obviously, perhaps, but in a very real sense, our histories may likewise leave out the human element. They do not stir our imagination or our partisanship in the way that is done, for example, by a good novel, because the material is not organized in such a way as to stimulate the pupil to reinterpret and dramatize the account in terms of his own experience. In other words, abstractly scientific forms mean a logical rather than a psychological organization of subject matter.

It is sometimes supposed that logical organization is just a peculiarity of the scientific mind or a convenient device which the research specialist finds useful for his purpose. That it is not a suitable form, without modification, for teaching purposes is doubtless true. But this does not decide the question whether "logical organization," in the sense just indicated, is something which concerns the research specialist and no one else. If we take this position, we are at once committed to the view that such organization should not be permitted in the curriculum, except in so far as we are training

prospective scientists. On the other hand if we hold that scientific organization of subject matter is important for the purposes of general education, it becomes necessary to make clear why this is the case.

As a preliminary to a discussion of the question at issue let us first try to draw a contrast between the knowledge of the practical man and the knowledge of the scientist or research specialist. If we compare the two we find a significant difference in type of organization. As an extreme illustration, let us take the case of a man who is lost in the woods. Such a man is quite likely to develop a keen interest, for the time being, in geography. He is much concerned to discover the location of the towns and rivers and the position of the North Star, but all the while his interest is confined within narrow limits. He is not concerned at all with the size of the Sahara or the location of the north magnetic pole. He cares only for those facts which will help him find his way back home. The facts of geography which he requires are selected and organized with reference to a further end; he requires, as we say, a practical knowledge of geography. It represents an attitude that is obviously very different from that of the specialist in geography, who is interested in geography "for its own sake," and consequently organizes his facts on a very different basis.

This difference in attitude, it will be observed, does not mean that science alone has organized knowledge; it means that there is a difference in the principle or

basis on which the organization is made. Even the humblest rag-picker organizes his knowledge. He classifies the different kinds of rags; he knows where rags can be found most abundantly or most cheaply, where and at what prices they are sold, and he may even know in some detail what is done with them after they have passed out of his hands. In the same way a plumber may know a great deal about water; yet his knowledge may be very different from that of the chemist. To the plumber it is important to know that water freezes at a certain temperature, whereas the chemist seems to be more interested in the fact that water consists of H_2O. Either of these traits might appropriately be offered as a definition of water. The plumber would naturally prefer his own definition, because the freezing of water has an important bearing on plumbing. This peculiarity of water brings in much new business and must be borne in mind when new plumbing is installed. The chemist, on the other hand, attaches a greater value to the chemical definition because of its importance for the analyses which must be made in order to extend the field of chemistry. When knowledge is so organized as to make it effective for the acquisition of more knowledge, we call it pure science. When it is organized for some purposes other than the accumulation of more knowledge, we call it practical or applied knowledge.

To put it differently, theoretical or scientific knowledge is particularly concerned with deduction. For

practical purposes the proposition that the earth is round is hardly an important part of geographical information. The average individual can get his bearings quite well and can secure abundant information about climate and change of seasons without reference to the shape of the earth. From the standpoint of science, however, the shape of the earth is a matter of great moment. By introducing the proposition that the earth is round we can make many other geographical facts appear in a different perspective. If the earth is round, then it is possible to explain deductively such facts as difference in time, differences in season, the possibility of the sun shining into a window with northern exposure at this latitude, and a multitude of other facts which to the practical man are merely empirical observations. Scientific geography shows why these facts are as they are; it shows that they could not be otherwise. The goal of scientific organization is serviceableness for purposes of deduction. The facts and discoveries that are of supreme importance to science are those which knit together a body of facts so as to facilitate deductive procedure. The law of gravitation and the principle of evolution are conspicuous examples. Still another case is the law of atomic weights in chemistry. A law of this sort might be of little practical importance and yet be supremely important to the chemist. Scientific knowledge is "pure" in proportion as it approaches this form of organization.

From his own standpoint the scientist is abundantly justified in exalting this kind of knowledge. In the first place, when knowledge fits together so as to form such a system, it constitutes perfection of method and proof, because a wide area of fact is made to converge upon a single point. From an empirical standpoint, a traveler's report that the sun rises later every morning when we go west is an isolated, uncorroborated bit of evidence. But from the standpoint of scientific geography a great mass of observations that have been accepted as fact stands and falls with this assertion. Secondly, the scientific organization of knowledge makes this body of achieved knowledge a peculiarly effective instrument in the acquisition of further knowledge. This is shown impressively by the prevalent use of mathematics in a great variety of fields. The application of mathematics shows that the development of the sciences is in the direction of facilitating deductive inference.

The distinctive character of such organization is emphasized if we contrast it with what has been called the "psychological" organization of subject matter. As was said just now, a logical organization aims to arrange knowledge in such a way as to show the relation of premise and conclusion. In geography it begins with the earth as a globe and works progressively toward details, so that the particular facts take their place in a system, which means that we do not merely find these facts empirically but are able to explain them

after they have been found or perhaps to predict them before they have been found. Geographers, for example, tell us that at the poles the year is divided into a single day and a single night, although no geographer has ever been at either pole long enough to verify the fact. They can tell the length of day at any given place for any given date and can show how arctic explorers starting at different places on the earth gradually move toward a common point if they proceed due north from wherever they happen to be.

As contrasted with this, a "psychological" organization is a very different affair. This kind of organization lacks the purely objective, detached, impersonal quality of "pure" knowledge. Its center of reference is the individual learner. We have often been told that geography must begin with the locality in which the pupil lives in order that he may see his own surroundings in a wider spacial context. The idea is that the actual process of learning must be more empirical and less deductive than the final organization which we call scientific. The question that confronts us just now is whether the final organization that is achieved by a pupil should be "scientific" in character or should be of a different and more "practical" sort.

This question has been an underlying issue for a long time. It is involved, for example, in the long-drawn-out struggle over the professional training of teachers. The stiff-necked traditionalist who sees no need for a professional study of education takes for granted that

"logical" arrangement, plus a reasonable amount of common sense, is all that a teacher needs. He suspects that all this "psychologizing" is inspired mainly by sentimentalism. As someone once put it, there are two kinds of teachers: those who love their pupils and those who know their subject. If the teacher knows his subject thoroughly, his procedure is all laid out for him. He must have some skill, of course, in simplifying and illustrating his material so as to bring it within the comprehension of the pupils, but the aims or "objectives" and the order of steps are determined for him. They are inherent in the subject matter itself. A knowledge of the technique of teaching "is necessary mainly to make the subject ultrapatent in order that the dullards in school and college may get something out of education." A knowledge of technique "is not of great importance, except in dealing with the backward pupil. Knowledge of the subject, spontaneity, character, personality, must be held as the principal items in the qualifications of the teacher. In some of the good old days these were estimated at their true value."[1]

This view has a certain plausibility until we raise the previous question. Why should any of the subjects at present in the curriculum be studied at all? The dyed-in-the-wool traditionalist is disposed to treat this question cavalierly. Knowledge is worth while

[1] Tait, W. D. — "Psychology, Education and Sociology"; *School and Society*, January 10, 1925, pp. 34, 35.

on its own account. This is apt to be the substance of his reply, somewhat adorned, perhaps, by allusions to "culture," to the joys of intellectual pursuits, and to the desirability of cultivating the mind.

All this may be granted, however, without disposing of the question. Life is more than scholarship. There are additional claims that are entitled to consideration. It is fairly certain that there are further reasons why schools are maintained in civilized communities. Society is concerned to make provision for its own perpetuation. The world's work must be done somehow, and so we must give heed to vocational interests. There are certain ideals or common purposes to be fostered which we call by such names as character and citizenship. What is called the logical organization of subject matter is concerned with one interest to the exclusion of these others. There is no justification for this exclusion, nor for the assumption that if the ideal of professional scholarship is protected, these other interests will take care of themselves.[1] But if we admit that the subjects in the curriculum should be taught so as to realize other purposes besides that of "pure" scholarship, we have the problem of teacher-

[1] As Dewey has pointed out (*Democracy and Education*, p. 258), Herbert Spencer, in his essay on "What Knowledge is of Most Worth?" argues that science is of supreme value, but neglects altogether the matter of psychological organization. He takes for granted that science, presented in logical form, will realize all sorts of aims besides the ideal of scholarship. His assumption is wholly indefensible, and is probably in large part responsible for the failure of science teaching to accomplish what was expected of it.

training back on our hands. It is not just a question of "knowledge of subject matter," plus a certain amount of extraneous or formal "technique." The question is rather what sort of subject matter should be taught and how it should be organized; it is a question of "the professionalizing of subject matter." From this point of view it is proper to inquire whether logical organization is desirable at all, except in the case of persons who expect to devote themselves to scientific research.

The question is still an open one, but the drift toward "practical" education has not, as yet, entirely succeeded in discrediting the claims of logical organization. For example, in the interests of the "enrichment of experience" and perhaps of vocational guidance we have introduced courses in general science, which afford an opportunity to bring in all sorts of material relating to the influence of science on the course of historical events, on industry and everyday life, and on our conception of the world in which we live. Such topics are immensely worth while, and they indicate the sort of insight that may properly be expected to result from the study of science. But if there is no guiding ideal of logical organization, a course in science which aims at breadth of view easily becomes a grab bag of miscellaneous information. It must "head in" somewhere, so as to give the pupils the power to think independently when confronted with new situations. This result is achieved if a "logical" organization of

knowledge grows out of it. Thus, a boy who learns to drive the family Ford and to keep it in running order can transfer his knowledge more readily to other types of automobiles if he learns the general principles of the gasoline engine. Or the youngster who learns to manipulate numbers as a result of playing games acquires the power to deal with more difficult matters if these activities are used for the purpose of introducing him to a knowledge of the abstract formulations of arithmetic. With very young pupils the emphasis falls naturally on facts, on content, rather than on procedure. But as we go up the scale method becomes increasingly important if we are to meet the requirements of a sound education.

The cultivation of intellectual interests, then, is necessary, in order to protect the future growth of the pupil. Without it there can be no effective social insight which will make it possible to deal adequately with new social situations. The fact that a given type of education results in some social insight is not sufficient. Even a narrow vocational training, for example, undoubtedly gives social insight of a certain kind and degree. It makes the pupil a citizen in the world of plumbing or carpentering or bricklaying. This is social insight, as far as it goes, since it gives an appreciation of how men live together and work together within the limits of a particular vocation. But it makes no provision for intelligent adjustment to other important aspects of the new environment, for sharing

in the political, economic, religious, and social questions of the day. With a broader treatment, vocational training can become a source of new interests. A vocation like agriculture, for example, is directly concerned with questions of transportation and tariff laws and consolidated schools, as well as with matters of physical and biological science. But these new interests must lead on to a knowledge of underlying principles, of "logical organization," if they are to become effective agencies for continued growth.

Logical organization is best exemplified perhaps in the physical sciences with its broad principles and quantitative determination of facts. Given a principle like the law of gravitation, for example, and a few facts regarding a planet such as its size, position, and velocity, an astronomer can plot the orbit of the planet and foretell its position at a given time in the future. The sailors of ancient times who guided the course of their ships by the stars, and the shepherds who studied the heavens in the lonely watches of the night, likewise knew a great deal about the stars, but their knowledge was not scientific knowledge. It differed in organization from that of the astronomer. Their knowledge was empirical rather than deductive. They knew that stars and planets shift their positions in the sky, but they did not know why this happened. But if we make this element or trait of deduction the differentiating trait of logical organization, it does not appear at all obvious that the social sciences have any real

claim to the name of science. We can predict comets and eclipses, but we cannot predict with certainty the facts that go to make up human history.

Even if this is conceded, however, there is a certain significant resemblance between a subject like history and a subject like physics or astronomy. From an educational standpoint both history and physics suffer from a certain abstractness due to form of organization, which gives them an appearance of unreality or artificiality in the schoolroom. In the case of history it has, as Thorndike says, "seemed indubitable to teachers as well as writers of textbooks that the students should begin where the country began. But what has seemed so sure is very questionable. The pupil actually begins with knowledge of the present condition of his own immediate environment plus a variable and chaotic acquaintance, through talk and books, with facts located vaguely in other places and earlier times." Here again the psychological order seems to diverge sharply from the logical order, so that, in Thorndike's opinion, "the arrangement of the first part of the course in history in the *inverse temporal order*, leaving the forward chronicle till later, deserves serious consideration."[1]

It may be remarked in passing that the change from logical to psychological organization in history is not achieved by the simple device of teaching history

[1] Thorndike, E. L. — *Education*, pp. 145, 146; The Macmillan Company. (Italics mine.)

backwards. It is only too easy to make history, whether it be taught forward or backward, an uninspired and altogether dreary chronicle of fact. What Thorndike means by the suggestion that history be taught in "inverse temporal order" is presumably that the experience of the pupil must be the constant center of reference. As Dewey remarks: "The true starting point of history is always some present situation with its problems."[1] History is taught backwards, in Thorndike's sense, when the pupil is encouraged to trace the beginnings of his home town, or to get a better understanding of racial problems in the South by a study of the Civil War and the period of reconstruction. In other words, the events of the past find their meaning in the facts of the present.

If we bear in mind the fact that historical events get their meaning from present facts and conditions, we get a basis for comparison between history and the physical sciences, both as to method and as to organization. When the specialist in the physical sciences undertakes to ascertain the causes of a phenomenon he has recourse, whenever possible, to experiment. In history this is obviously out of the question. The causes of the recent World War or of the prevalence of lawlessness in this country cannot be determined by experiment, but must be ascertained from a study of antecedent events and conditions. A historian might

[1] Dewey, John — *Democracy and Education*, p. 251; The Macmillan Company.

find, for example, that frontier conditions in America, when men relied on themselves for protection in the exercise of their rights, rather than on courts and the other machinery of the law, had much to do with the tendency to disregard the law. The explanation of a present condition by reference to a previous and different condition of society is a way of analyzing our present social structure, just as experiment is a method of analysis. The records of the past become the historian's substitute for the laboratory.

Let us now attempt to carry the analogy between history and physics another step. When the physicist has completed his experiments he formulates his results in the form of what we have previously called logical organization. He may, for example, explain why a steel rail expands in length during the heat of the summer by showing how the rise in the temperature affects the movements of the component molecules so as to make the rail longer than it was before. This organization gives simply the results of the scientist's labors, and it gives these results in the form best calculated to prove his point. The organization tells us nothing of the fumbling, the following of false trails, the discovery of previously unsuspected factors and circumstances that had to be taken into account — in short, it tells us nothing of the way in which the system was built up. Consequently, the system tends to stand apart, in the mind of the pupil, from concrete experiences. In somewhat the same way the historian

builds up his system of facts. He follows the chronological order, beginning, perhaps, with a period that is remote and vastly different, and coming down to the present. The purpose is to make the present appear as the necessary outcome of the past, but this purpose is not achieved in proper measure with the common run of pupils, unless this form of organization is departed from. Both in physics and in history, then, we have a type of logical organization that is intended to explain particular facts by reference to their context or setting. It is a sort of organization that takes us beyond the range of merely empirical knowledge. The fact in question is not just a "brute fact," but a fact which is so tied up with other facts that it can be arrived at by a process of deduction. This is only another way of saying that the historian, like the physicist, aims at an organization of knowledge which will serve as an instrument for the acquisition of further knowledge within his special field.

It is true that prediction is much more dangerous in the social sciences than in the physical sciences. It is true too that the social sciences do not often have laws which can be expressed in formulae, such as the physical sciences can show. Yet the method of the social sciences is the method of science in general. As Dewey says, "every step forward in the social sciences — the studies termed history, economics, politics, sociology — shows that social questions are capable of being intelligibly coped with only in the degree in

which we employ the method of collecting data, forming hypotheses, and testing them in action which is characteristic of natural science."[1] The ideal in the social sciences, as in the natural sciences, is to build up a body of knowledge so organized and interrelated that the facts stand and fall together. A schoolboy tends to learn historical facts as so many separate bits of information. To a historian, the facts determine one another. In his scheme of things there is only one date, for example, that fits the close of the Civil War in America or the beginning of the World War. Any other proposed date would conflict with other facts of which he has knowledge. This interrelationship of facts means that he can reason deductively. The Civil War *must* have come to a close at the date specified by him, because the surrounding context of facts requires this conclusion.

If we turn now to a subject like literature, where the cultivation of appreciation is said to be the chief aim, the distinction between logical and psychological organization may seem out of place. There is indeed plenty of room for psychological organization, but it is not entirely evident where logical organization comes in. In order to secure appreciation when it is not spontaneously present, it is obviously necessary to provide an appropriate context of experience. How a context of experience may give us new appreciations of the facts is exemplified in the everyday affairs of life.

[1] *Ibid.*, p. 333.

The Prodigal Son in the parable may have been aware all the time that his conduct, as judged by the standards which he accepted in common with his contemporaries, was inconsiderate and ungrateful. But he had no "realizing sense" of what this meant until he had undergone certain experiences, which made him say: "Father, I have sinned against heaven and in thy sight and am no more worthy to be called thy son." Experience can give to old and familiar facts new depths of meaning that are felt as well as understood. In the study of literature the aim is to produce a certain kind of experience which is achieved by securing for the subject of our study an appropriate context of fact so that a new appreciation will arise. A knowledge of the poet Henley's life and character, for example, gives a new value to the oft-quoted lines:

> It matters not how straight the gate,
> How charged with punishment the scroll;
> I am the master of my fate,
> I am the captain of my soul.

This position is in line with the view that "the primary and immediate aim in the teaching of literature is that our students may receive a literary experience"; or that the literary purpose is "the use of language to communicate not facts and thoughts, but vivid realizations of actions, of emotions, of ideas, in order that we may experience all of life to the full."[1] The realiza-

[1] Fries, C. C., Hanford, J. H., and Steeves, H. R. — *The Teaching of Literature*, pp. 54, 57; Silver, Burdett & Co.

tion of this "primary and immediate aim" is sought by means of what we have previously called a psychological organization of subject matter. The building of such an organization may obviously involve the acquisition of considerable new information, which serves as a means to the development of appreciation. But besides this the organization as a whole may serve as a means to "logical organization," and it must do so if the study of literature is to be made what it should be. We then aim not only at direct appreciation, but at a study of the method by which the literary artist secures his effectiveness. Such study leads into questions of plot, sentence structure, diction, meter, and the like, which is sometimes called the scientific study of literature. When such study grows out of a background of appreciation, it becomes a means of securing a heightened sense of appreciation, of developing new standards. If appreciation is neglected, the result is not a refinement of taste and of standards, but a weary accumulation of a dead load of purely factual material.

In the light of this long discussion we may conclude, then, that logical organization is a matter of supreme importance, not only for the scientific specialist but for education in general. The recognition of this importance is a protection against both undue narrowness in vocational education and the danger of diffuseness and superficiality in the types of education that take their cue from the doctrine of pupil interest and activity. The drift of things at present is toward

substituting "activities" for "subjects" in curriculum construction, these activities in the one case being the activities of adult occupations and in the other case the spontaneous activities of childhood. In either case the substitution is fraught with danger. By stressing the importance of logical organization we restore to ourselves a sense of direction, and we achieve a new meaning for the old ideas of discipline and power. The discipline that comes as the result of such a program signifies, not the strengthening of mythical "faculties," but training in method. By organizing our knowledge as science has taught us to do we acquire both a keener sense of evidence and a better equipment for dealing with new problems. Knowledge so organized is power in a superlative sense and it answers the question how education must be conducted so as to secure a maximum of transfer to new situations.

As was pointed out, however, this is only one side of the story. Logical organization is indispensable, but it must be a final result and not a starting-point. Psychological organization is equally necessary. This is the truth in the contention that pupil activity must be encouraged as much as possible. And this introduces a great complication. Logical organization is abstract and impersonal; it is the same for all. Psychological organization, on the other hand, is a variable quantity; it differs with different persons and at different age-levels. In order to secure such organization the teacher must have sufficient resourcefulness to use his

knowledge of individual pupils or of circumstances that are more or less local or of passing significance for the purpose of supplementing what is in the textbook. Psychological organization, in other words, is a matter both of teaching method and of the curriculum.

And this is not all. If we take psychological organization to mean, as seems proper, that the subject matter which is being studied must be so handled as to secure a widening of the pupil's everyday experience, we are at once confronted with the problem of direction. The agitations of the past decade have shown conclusively that education cannot be as detached and remote from live issues as it is sometimes supposed to be. The teaching of history, for example, has a bearing on our attitude toward the Constitution, and the nature of patriotism, and the like; the teaching of biology has theological implications; and the whole organization and conduct of the school reflects some sort of conception regarding the nature of discipline and duty. Subject matter must be psychologized so as to transform the experience of the learner; but in which direction is this transformation to take place? In default of a sound guiding principle an overzealous teacher may make his particular political or economic or religious creed a tremendously vital, yet an evil thing in the lives of his pupils. This will hardly do, but neither are we prepared to say that subject matter should be psychologized merely for the purpose of promoting the attitude of the research specialist or of

securing vocational efficiency. It is evident, therefore, that some sort of program or guiding theory is indispensable.

This conclusion, however, appears to involve us in a dilemma. A guiding theory such as we seem to need would inevitably come into conflict with other theories. There is no possibility of teaching the various subjects in the curriculum in such a way as to satisfy everybody. These other theories could then charge that the schools were being used to promote one particular theory or creed at the expense of the rest, and we have always held that the schools of a democracy must be kept free from creeds of every sort.

There is a sense in which democracy, too, is a creed. It is useless to expect the schools of a democracy to be entirely neutral with respect to all other creeds. For example, it is in violation of some creeds to teach that it is ever a duty to bear arms, or that it is right to serve a government which does not acknowledge the Christian religion in its constitution, or that disease is a fact to be dealt with in accordance with scientific methods. Instances of this sort serve to show that there can be no such thing as complete neutrality and impartiality. All effective education tends inevitably to promote some sort of outlook or attitude toward life. We may as well admit the fact openly and try to determine what sort of attitude or point of view should be embodied in the schools of a democracy such as ours.

The answer to this question has already been hinted

at in earlier pages. The characteristic trait of a genuine democracy is that it does not accept any given form of social organization as necessarily final. Our national history records such actions as the abolition of slavery, the control of monopolies, and the adoption of the Prohibition amendment, each of which meant a serious invasion of what many people regarded as a fundamental human right. Mistakes in plenty may of course be committed in the name of democracy. The point is, however, that the idea of democracy makes questions of right and wrong depend upon the consequences which our institutions and our actions have for associated human living. It regards those things as right and obligatory which help to promote an active concern in so using our material and social resources as to provide opportunity for self-expression for everybody. A democratic society governs itself by standards which are not absolute or fixed, but which are subject to change in the light of changing conditions and in accordance with the ideal of a common life.

In attempting to translate this ideal into terms of education we must recognize, first of all, that considerably more is required than just an attitude of amiability toward others. The ideal of democracy calls for an active concern, as a dominating principle of conduct, in making our social organization an embodiment of the spirit of good will and coöperation. The first prerequisite for this is knowledge. It is

necessary to have an appreciation of how other men live, by what circumstances their activities are conditioned, and how intricately the life of every person is bound up with the lives of others. Every subject in the curriculum gives opportunity for widening the pupil's outlook in this direction, and this is the form of psychological organization of subject matter required by a democratic program of education.

The teaching of science affords a convenient illustration of the point under discussion. From the standpoint of logical organization the teaching of science has to do with the inculcation of a body of technical information and with training in method. But it can serve effectively as an instrument for fostering the type of social insight that makes for a democratic attitude. Science, as we all know, has transformed our everyday environment. This fact is borne in upon us at every turn. How extensively it has done so, however, becomes apparent only as a result of study. On a more primitive level of life, for example, the family or the local community was, relatively speaking, an independent economic unit. It depended largely upon itself for food, clothing, and creature comforts. This state of affairs was excellently adapted for a feudal organization of society. But the applications of science, in the form of firearms, modes of communication, particularly the printing press, transportation, and manufacture, inevitably led to different types of social organization. All sorts of mutual interde-

pendencies were created, which resulted in wider co-operation and understanding. To this must be added the fact that science has given us the idea of a world dominated by natural law, which required an extensive reconstruction of our moral and religious conceptions.[1] All this is what we mean by "social insight," and in the hands of a skillful teacher science thus taught contributes powerfully to "that respect for men which we call democracy."[2] This aspect of the subject can be made to center on the idea that man is the master of his environment and that it lies within his power to create a world in which there shall be no poverty or ignorance or disease or injustice. In short, any subject that is worthy of a place in the curriculum must contribute to the attitude which places upon men the responsibility for the continuous re-creation of the environment and of standards for conduct with reference to that respect for men with which we identify democracy.

It seems evident that a procedure of this sort is quite compatible with the ideal of scholarship and of vocational efficiency. As a matter of fact these ideals are necessary in order to make social insight as effective as it should be. Our educational program is endangered only when we permit any one of these different aspects

[1] This influence of science has been portrayed in such popular novels as James Lane Allen's *The Reign of Law* and Harold Bell Wright's *The Calling of Dan Mathews.*

[2] Kilpatrick, W. H. — *Education for a Changing Civilization,* p. 27; The Macmillan Company.

of a single problem to control our program in separation from the others. This is precisely our besetting danger at the present time. Whenever this mistake is made we go counter to the democratic ideal, no matter how much we may plead that our procedure is "scientific." In succeeding chapters we shall discuss various movements or doctrines for the purpose of showing in more detail how innovations that are advocated in the name of science and reform may become obstructions to the cultivation of fundamental educational values.

Questions and Exercises

1. Point out what you consider to be the advantages, respectively, of a logical and a psychological organization of subject matter. Illustrate.
2. Show how the demand for psychological organization of subject matter leads into the question of educational ideals. Point out the bearing of this matter on the training of teachers.
3. Show by example how historical study becomes a substitute for laboratory experiment in explaining the nature of present social organization.
4. "All prediction is deduction, but not all deduction is prediction." Give illustrations bearing on this point.
5. Give an illustration showing how logical organization, by converging a wide range of facts upon a single point, gives a maximum of proof.
6. Should psychological organization be used in the case of pupils who intend to specialize in a given subject? State reasons.
7. Should logical organization be introduced all along the line, or only in the more advanced grades? Give illustrations and reasons.

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CHAPTER IV

CURRICULUM CONSTRUCTION AND CONSENSUS OF OPINION

At the present time the problem of curriculum construction is very much in the foreground. There is a widespread feeling that curriculum construction in the past was left almost wholly to tradition, guesswork, and individual bias. It was customary to announce certain lofty aims and then to lay down a curriculum that bore no discoverable relations to these aims. We now recognize this as bad form. As Bobbitt puts it: "Objectives that are only vague, high-sounding hopes and aspirations are to be avoided. Examples are: 'character building,' the 'harmonious development of the individual,' 'social efficiency,' 'general discipline,' 'self-realization,' 'culture,' and the like. All of these are valid enough; but too cloud-like for guiding practical procedure. They belong to the visionary adolescence of our profession — not to its sober and somewhat disillusioned maturity."[1]

Adolescence, as we know, tends to take its responsibilities lightly. The objectives that used to be set up certainly have the appearance of being a kind of New Year resolutions, formulated in conformity with the

[1] Bobbitt, F. — *How to Make a Curriculum*, p. 32.

spirit of the occasion but with no thought of taking them seriously. Our forefathers talked much of character formation and discipline, but did not consider it necessary to keep these high purposes in mind when they were occupied in drilling defenseless childhood in the forms of Latin syntax. In their actual teaching they were less concerned with general aims than with specific results. From the standpoint of certain modern educators their practice was wiser than their theory. "A teacher of chemistry," as Thorndike says, "who thought vaguely of the general end of the teaching of science might well be doing far less to attain it than one who thought of the direct purpose of teaching fifty sets of facts and forming a score of simple habits." We cannot teach "in general" or achieve purely general aims. "To attain the ultimate aims best, the immediate aims may need to be varied to suit differences in sex, race, age, previous training, and circumstances. To lead this boy to read Scott's novels instead of Old Sleuth's stories; to teach this girl how to sew; to root out the habit of bullying from John's make-up; to prepare this class to study medicine — these are samples of the millions of aims we have actually before us in the concrete work of education."[1]

Before passing on, however, we may pause a moment to observe what lay back of this earlier attitude. If

[1] Thorndike, E. L. — *Education*, pp. 16, 17; The Macmillan Company.

we go back a certain distance in the past we come to a time when training in the classics had considerable justification from the standpoint of social expediency. Such training was reserved for certain favored classes, and it enabled the individual to mingle freely with others of his own rank and class. But when the old social landmarks began to disappear in the democratic upheaval, this justification was no longer available. The control of affairs had passed largely into other hands, and training in the classics was no longer a ticket of admission on even terms with all the other members of the ruling class. Accordingly it became necessary either to revise the whole notion of education in the light of a different social theory, or else to justify the old notion of education in terms of the nature of the human mind. The former alternative presented formidable difficulties. It is no simple matter to replace modes of thinking in social, economic, and religious matters when the weight of the centuries is all against it. So the other alternative was followed. The prevailing type of education was justified in terms of faculty psychology and formal discipline. Objectives like character building, discipline, and harmonious development are indeed vague to the last degree from our present standpoint, but they were reasonably definite from the standpoint of faculty psychology. All that was necessary was to provide exercise for certain faculties, such as "will," "conscience," "reason," and the like.

It appears, then, that these objectives of an earlier date have become objectionable, both because we have changed our notions regarding the mind and because we are more concerned to prepare for specific occupations and duties. Consequently, we are facing a demand for "specific objectives." Out of this demand there has arisen a new theory of curriculum construction and a new mode of approach. "The central theory is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes, habits, appreciations, and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite, and particularized. The curriculum will then be that series of experiences which children and youth must have by way of attaining those objectives."[1]

It is altogether natural that this movement in the direction of specific objectives, which loves to call itself "scientific," should have secured a large following. It holds out various inducements. In the first place, it promises to deliver us, at one stroke, from the whole

[1] Bobbitt, F. — *The Curriculum*, p. 42; Houghton Mifflin Company.

appalling mass of verbiage that has gathered around the topic of objectives. To find oneself emancipated from the formulae of outworn traditions is in itself immensely invigorating. Secondly, it promises to bring education into intimate and vital relations with life. Under the old régime there was clearly something wrong, but it was not easy to locate the nature of the trouble. Like Omar Khayyam, many an aspiring teacher made it a practice to frequent doctor and saint in order to gain insight. In so doing he heard great argument "about it and about," but — again like Omar — he all too often came away with nothing tangible except the uninspiring discovery that he had been the victim of misplaced confidence. But in our scientific education our theories get down to earth and are made to do a day's work. And thirdly, this movement promises to the specialist in education a chance to regain his self-respect. Within the limits laid down here, so it would seem, he can be scientific along with the best of them. To those who have endured for many years the slings and arrows of an outrageous prejudice against teachers of education this cannot count as a small consideration.

That there are possibilities of great good in this movement it would be small-minded to doubt. We have been far too little concerned in the past with the application of school learning to the affairs of everyday life. But it is worth while to bear in mind that the movement is in part a reaction and so is in danger of going to extremes. This is particularly true at the

present time, because of our unbalanced enthusiasm for scientific method. The determination to make every problem in education a problem to be solved by special scientific technique may easily result in a failure to appreciate the significance of the democratic movement that was discussed in the preceding chapters. When this happens scientific method becomes a means of opposing genuine progress. Refinement of technique is no substitute for insight. As J. H. Robinson says:

"It is a fundamental and hopeful discovery, to be ranked among the great inventions of mankind, that we do not necessarily learn much about a situation from what is sometimes called a scientific method of dealing with it. We can fill a big book with statistical tables and imposing graphs, but so long as we do not ask how we got into the fix we miss the main point. When in the seventeenth century almost all educated men—doctors, theologians, jurists, professors—believed in witchcraft one might have prepared questionnaires and surveys to seek out and record the incidence of witchcraft, the frequency of the devil's 'sabbaths,' the technic of getting up a chimney on a broom or three-legged stool; the per cent of witches who sank when they were cast into the water, the average location of the devil's mark. But all this would hardly have forwarded the disappearance of the delusion."[1]

[1] Robinson, J. H. — "How Did We Get That Way?" *Harpers Magazine*, August, 1926. Harper & Brothers, publishers.

This is in no sense intended as an aspersion on scientific method. It would require an unusual combination of hardihood and stupidity to enter a blanket charge against scientific method in general. The point is simply that if we start with a wrong assumption no amount of energy and ingenuity in the manipulation of scientific technique will convert this initial error into a sound principle. The significance of the democratic movement lies in the notion that training for specific objectives cannot be the whole aim of education, for the reason that the purpose of this movement is precisely to make over the social order and our present modes of living so that we may progressively substitute new objectives for old ones. Any scheme of education that fails to make provision for this element of progress is, so far forth, hostile to the democratic purpose of humanizing both education and life. An educational ideal which is content to train pupils for predetermined specific objectives is better suited to a static than to a dynamic social order.

In view of the fact that it ignores the ideal of a progressively changing social order, the doctrine of specific objectives seems to secure a tremendous simplification of the educational problem. All this elaborate theorizing about educational objectives can be dispensed with. To secure the right objectives for specific activities "requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes,

habits, appreciations, and forms of knowledge that men need."

This buoyant confidence, however, in the possibility of dispensing with sustained thinking about educational objectives is hardly justified by performance. According to Bobbitt the ideal way of determining these objectives would be "through a careful scientific analysis of community needs by trained investigators."[1] The discovery of these community needs would be, *ipso facto*, a discovery of desirable abilities. As Bobbitt points out, however, this procedure is not practicable on any extensive scale at the present time, because we have no such army of investigators available as would be needed for the purpose. And fortunately there are many instances in which such investigation is unnecessary, because "innumerable things are proved by practical experience. Take, for example, the ability to read. No scientific study has been made which proves that this is a needed human ability. But practical experience has proved it with finality. And what is thus proved takes its place as scientific verity. One does not employ the refined methods of research to demonstrate the obvious."[2]

Just how Bobbitt expects a scientific analysis to reveal desirable abilities and needs I am quite unable to discover. No scientific analysis known to man can

[1] Bobbitt, F. — *Curriculum Making in Los Angeles*, p. 6; Supplementary Education Monographs, No. 20. University of Chicago, 1922.

[2] Bobbitt, F. — *How to Make a Curriculum*, p. 34.

determine the desirability or the need of anything. Statistical investigation, for example, may show that a certain number of burglaries occur annually in a given community, but it does not show whether the community needs a larger police force or more burglars. That is altogether a question of what sort of community we may happen to want. Or to take Bobbitt's own illustration, a scientific analysis would doubtless show that a reading ability is necessary for the conduct of many of the complicated operations in civilized society. But whether it is desirable that these operations should be carried on the deponent saith not. Old Governor Berkeley of Virginia — God rest his soul! — was of a negative opinion.[1] The notion that ideals can be evolved from a process of collecting environmental facts is just another of the many delusions to which our sinful human flesh is heir.

This criticism however is merely by the way, since Bobbitt dispenses with scientific analysis, not only in those connections where he considers such analysis unnecessary, but everywhere else as well. A consideration of the determination of objectives by means of scientific analysis may therefore be postponed until

[1] The worthy governor wrote in 1671 to the Lord Commissioner of Foreign Plantations as follows: "I thank God there are no free schools nor printing, and I hope we shall not have these hundred years; for learning has brought disobedience, and heresy, and sects into the world, and printing has divulged them, and libels against the best government. God keep us from both."

a subsequent chapter.[1] Bobbitt's method is essentially a form or modification of the questionnaire method. In formulating his objectives, so he tells us, he has "held, in the main, to those which represent the practically unanimous judgment of some twenty-seven hundred well trained and experienced adults."[2] As Bobbitt explains, his list of objectives "has grown up gradually through twelve years of coöperative effort on the part of some fifteen hundred members of graduate classes in 'The Curriculum' conducted by the writer at the University of Chicago. Recently the list was critically examined by some twelve hundred high-school teachers in Los Angeles and again revised."[3] It is curriculum making on the basis of consensus of opinion.

In this day of questionnaires this procedure is likely to have a considerable measure of antecedent plausibility. It has become a habit with us, when we are puzzled by a problem, to consult others who are equally puzzled or who perhaps have not reflected on the problem at all and to evolve a solution out of our collective ignorance. A striking result of this method, however, as handled by Bobbitt, is that the "common judgment of thoughtful men and women" about educational objectives gives us virtual unanimity. It seems too good to be true. The outcome of Bobbitt's work with the teachers of Los Angeles is a list of

[1] See ch. v, "Curriculum Making and the Method of Job Analysis."
[2] Bobbitt, F. — *How to Make a Curriculum*, p. 10.
[3] *Ibid.*, p. 11, note.

some five hundred fifty abilities, and we are given to understand that the great mass of these, at any rate, are endorsed by all the teachers. This is rather staggering. If the list really represents such common judgment, we are bound to conclude that men and women are more amenable to reason in Los Angeles than anywhere else on the globe. At the opposite end of the country, in the halls of Congress, there is certainly no similar agreement as to the needs of the community. In fact, as far as I can recall, the only suggestion emanating from that quarter that ever carried with it anything like unanimous approval was former Vice-President Marshall's pronunciamento, "What this country needs is a good five-cent cigar." One almost wonders whether the teachers of Los Angeles did not mistake Bobbitt's list of abilities for a petition to be signed. Since human beings are what they are, a report like that of Bobbitt must be received with considerable caution.

An inspection of the list of abilities soon discloses, as I venture to think, one reason, at least, for the surprising agreement. Speaking generally, the abilities are of two kinds. One kind consists of practical abilities such as people would ordinarily concede to be desirable, without much hesitation, as for example, "the ability to check up laundry slips," "to build a camp fire," or "to sell one's automobile with profit to oneself." The other kind suffers from vagueness of meaning or indefiniteness of application. Bobbitt

tells us, for example, that, according to the common judgment of thoughtful men and women, it is desirable to cultivate the disposition to obey the laws, to recognize obligation, to hold to high ideals and standards, and to do one's best, whatever the circumstances. But what does such agreement mean? Do these thoughtful people also agree with Emerson's dictum that "good men must not obey the laws too well"? Is the sense of obligation or duty to be cultivated for its own sake, or is it to be reduced to terms of interest? Does everyone decide for himself what constitutes high ideals and doing one's best? These questions have a vital bearing on what shall be taught and how it shall be taught. As long as we ignore the differences of opinion that lie behind the sheltering verbiage, we are not determining objectives, but merely furnishing a sanction for every teacher to set up whatever objectives he may see fit.

It would not be difficult, I think, to cite other evidence to the effect that Bobbitt's list of abilities not only covers up debatable points, but is essentially a reflection of his own personal philosophy of life. We find in the list such abilities as the ability to read one's rights as things earned; the ability to feel oneself a part of a larger unitary whole, which we call the universe; and the ability to see all reality *sub specie aeternitatis.* It would be open to a critic to argue that babies have rights which are not earned; that the root of religion lies, not in a sense of unity with reality, but in a sense

of sin and division, or perhaps that this sense of oneness is but another name for mysticism and a source of harm rather than good; and that the habit of seeing things *sub specie aeternitatis* is evidence of intellectual perversion. I do not wish to urge any such criticisms, nor to object to the cultivation of a philosophy of life. On the contrary, a philosophy of life is necessarily basic to any serious educational theory. My criticism is that personal bias or preference is smuggled in under the guise of an objective, impersonal determination of fact. When this happens, educational objectives become once more, as in the past, an excuse for the perpetuation of tradition and the *status quo*.

As a further point I wish to call attention to the fact that the selection of abilities carries with it certain unrecognized implications with regard to the nature of the learning process. As was intimated previously, Bobbitt's scheme substitutes abilities for the old-time faculties. In the older doctrine abilities were of two kinds. Those which pertained to the body were highly specific, consisting of mechanical habits. On the other hand those which pertained to the mind were general, as for example, the ability to reason; and the application of this ability to a variety of situations was supposed to be guaranteed by the principle of transfer of training. In the selection of activities or abilities the question inevitably arises as to the extent to which it is possible to train general abilities.

This question is not faced in Bobbitt's scheme, but

is avoided. In some connections his list of abilities indicates a profound distrust of transfer. For example, instead of providing for a general ability to handle tools, he lists as separate abilities such skills as putting up shelving, putting on doorknobs, renewing washers in faucets, gluing, soldering, joining electric wires, insulating wires, keeping the clocks wound, and so on in endless detail. But at other times the abilities rival the "faculties" in generality. We find listed, for example, the "ability to protect one's self from social, economic, and political fallacies," a "general dislike of things cheap, careless, and tawdry" and the disposition "to do one's best whatever the circumstances." In other words it seems entirely arbitrary, in the case of any new activity, whether it is to be assigned to a new ability or tucked away under an old one. But it certainly makes a difference in the training of these abilities. Make an ability specific enough and it becomes automatically converted into a habit. Make the abilities general and the emphasis is bound to shift to the development of attitudes and ideals. If, for example, we should undertake to train a boy's ability to button up his coat, we should rely chiefly on drill. But if we should aim to develop the ability to dress neatly or in accordance with the fashions, we should proceed very differently. According to one kind of psychology, habit is the fundamental category in education. Other psychologies disagree with this and with one another. Where does Bobbitt stand?

My point is that we cannot have it both ways. If every specific activity means a correspondingly specific ability, then the list, long as it is, is but a haphazard, random sampling. Why not an ability to thread a needle, to sew on buttons, to climb a fence, and to be amiable toward one's mother-in-law? Why not, in short, reduce life as far as possible to the level of mechanical habit? On the other hand if there is such a thing as the training of general ability, what is the meaning of all the detail? Unless we have some sort of guiding philosophy in the determination of objectives, we get nowhere at all. The list of abilities, it appears, offers us something that is neither fish nor fowl.

As I have tried to suggest, this oscillation between objectives that prescribe training down to the last detail and objectives that are merely vague and ambiguous generalities is a natural outcome of the notion that objectives are not created but can be discovered, like oil or coal. The emphasis on specific objectives leads inevitably to the view that adult activities are the standards by which educational activities must be guided. As Bobbitt says: "Education is primarily for adult life. Its fundamental responsibility is to prepare for the fifty years of adulthood, not for the twenty years of childhood and youth."[1] In other words, the emphasis on specific objectives justifies us in setting up adult activities as final patterns, and so to disregard the need of a progressive transformation of the pupils'

[1] *Ibid.*, p. 8.

experience in the direction of wider social insight. But since the need of a more flexible training cannot be entirely ignored, further "objectives" are added, which turn out to be nothing more than pious admonitions. They leave as much room for the mechanical and hidebound pedant as for the enlightened and progressive teacher. These "objectives" are like the ancient oracles — to be interpreted as each person may see fit.

As was intimated previously, the doctrine of specific objectives is a reaction against the old notion of "general" training through the strengthening of the faculties. This reaction was justifiable, since these faculties turned out to be purely mythological entities. It is not surprising, therefore, that an attempt should be made to derive a clue for educational guidance from specific activities. If we could only know beforehand all the important specific activities in which the oncoming generation will be engaged, we could prepare for them directly, instead of having recourse to some sort of "general" training. As this world is constituted, however, it is impossible to know all these specific activities in advance. Moreover, the specific activities that we can foresee are subject to continuous modification with changes in circumstances. The specific activities of the good farmer or the good citizen, for example, are considerably different from what they were a few decades ago. Consequently, some form of general training is necessary after all. As was sug-

gested in an earlier chapter, such general training can be provided by aiming at "social insight" and at a "logical" organization of knowledge. The notion, however, that our educational program must be guided by predetermined specific activities inevitably distracts our attention from general training. In so far as general training receives any recognition at all, it is left without any guiding principle. The objectives that are set up in this connection prove to be of a purely verbal kind.

Perhaps this criticism is too sweeping. The doctrine of specific objectives, as advocated by Bobbitt, has at least the appearance of leaving a large place for the cultivation of abstract science. There is need, so we are told, of seeing things in "a wide and accurate way," and this is what science enables us to do. Unless the individual is to be left helpless in the face of new problems and new emergencies, the specific objectives in which he is trained must have a broad background of science.[1]

While this recognition that science can provide an indispensable element of flexibility in dealing with new situations is entirely commendable, it does not seem, as we may note in passing, to square any too well with the fundamental idea back of the doctrine of specific objectives. In so far as the nature of a specific activity is known in advance, no general background is needed, since by definition we can determine beforehand just

[1] *Ibid.*, ch. viii (especially pp. 129–32).

what is necessary for successful performance. A general background is necessary only in so far as we do not know beforehand what is to be done; *i.e.* in so far as education is not determined by specific objectives. But, disregarding this inconsistency, we seem to find that the doctrine of specific objectives cannot provide a place for science without first mutilating it beyond recognition. As Bobbitt says, quite correctly: "The specialized scientist tends, as a matter of vocational habit, to look at it [science] primarily as a refined system of investigative technique which results in a body of living and changing knowledge." But the reaction against abstract and formalized knowledge, which is largely responsible for the doctrine of specific objectives, does not take kindly to science as thus understood. Hence we are enjoined to treat science rather as "activity," as "experience on the level of intellectual play. It is spontaneously looking at the world of reality as a satisfying or enjoyable type of experience. It is science for the sake of science — seeing for the joy of seeing."[1]

Statements of this sort may be accepted as true without thereby establishing a claim to be regarded as adequate for the purpose in hand. Any gossipy treatment of scientific facts might easily conform to a description of this sort. It is undoubtedly true, as the statement suggests, that the cultivation of science for its own sake calls for a distinctive type of attitude.

[1] *Ibid.*, p. 133.

But the nature of this attitude is not adequately described by the statement that science is "spontaneously looking at the world of reality as a satisfying or enjoyable type of experience." The scientist is no more of a passive onlooker than the practical man. He approaches the world of reality with his own distinctive purpose or aim, which is to build up a purely "logical" system of knowledge. This distinctiveness of purpose is not indicated by the description of science as "play." The procedure of the scientist is "play" only in the sense that he has no aim beyond the acquisition of knowledge. If we overlook the fact that science means a specific type of organization we are in danger of dissipating our energies in the study of science by limiting ourselves to the accumulation of a mass of more or less interesting details. We then become acquainted with scientific facts, but we do not become introduced to scientific procedure or method. It is science with science left out. In applied science the element of method is likewise subordinated, since the center of interest is in results rather than procedure. Consequently, we are likely to lose out at both ends. In brief, our modern scientific curriculum building threatens to become a danger to the development of the scientific attitude or spirit in the pupils.

In conclusion, I wish to repeat that the appeal to the social environment for educational objectives must have back of it a social program or philosophy. Unless we work on the basis of a comprehensive theory, all this

scientific education is bound to become simply an elaborate nuisance. We cannot permanently avoid our obligations in the matter by labeling serious consideration of a social program based on human nature and capacity, as "metaphysics" or "speculation." Philosophy, as James once said, is merely an "unusually obstinate attempt to think clearly," and the attempt must be made, even if it leads into such questions as the nature of mind, the nature of moral values, and other questions which collectively constitute philosophy of education. What, for example, is mind? The problem is clearly fundamental, but, as a rule, our teachers have not even been introduced to it, to say nothing of having been helped to a solution. It seems odd to have to argue, at this late date, that the pupil forms an important part of the educative process. I am reminded of the country girl who was on her first visit to the city and who decided to have her picture taken. When asked by the photographer whether she would like to have a bust picture, she answered timidly that, if he could arrange it, she would very much like to have the head on too.

It is unnecessary, I trust, to add that no right-minded person can object to the scientific study of education. Such study is indispensable. But we cannot afford to forget that the significant objectives of education must spring from a comprehensive theory of education. If our ideals are neglected or permitted to deteriorate, it is small compensation that we have made incidental

improvements here and there. We are in danger of losing ourselves in the mass of details and of losing our powers of imagination. As Lincoln once remarked, when his time was eaten up by office-seekers, he was like a man who was renting out the front rooms of his house while the back of it was on fire. We must cultivate a philosophy of education, if education is to have objectives that will enable it to meet worthily its obligations and its opportunities.

Questions and Exercises

1. What is the bearing of the demand for specific objectives on the need of logical organization of subject matter?

2. Consider the following argument: "It is not claimed that consensus of opinion will give us infallible truth. But it is the best that we can get. If we do not accept consensus of opinion as final authority, we are obliged to fall back on individual opinion, which is worse, since an individual person is more likely to be wrong than a whole group." Try to show the limitations of this argument. Use illustrations.

3. "Democracy means rule by the majority. Consequently it is right, in principle, that educational objectives should be determined by consensus of opinion." Show that this argument is subject to qualifications. Use illustrations.

4. Make up a list of half a dozen objectives which you think would be accepted by the average person, and then show that these objectives are open to divergent interpretations corresponding to divergences in standpoint or philosophy of life.

5. Give illustrations to show what is meant by the following statement and judge of its correctness: "If the objectives secured by consensus of opinion are really specific, they encourage mechanical habit; if they are more general in character, they are ambiguous. In neither case is proper provision made for the exercise of intelligence."

6. Illustrate and discuss the following statement: "Scientific investigation enables us to discover the means for the realization of ends, but does not provide ends or objectives for conduct." If you regard this statement as true, would it follow that the progress of science has no bearing on the formulation of new aims or objectives in life and in education?

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CHAPTER V

CURRICULUM MAKING AND THE METHOD OF JOB ANALYSIS

As was intimated in the preceding chapter, there is at present a widespread movement in educational circles toward "specific objectives." Like most movements it has had its forerunners. As a recent writer[1] points out, Herbert Spencer anticipated the modern trend when he voiced the demand for objectives of a more specific sort than those of traditioned education. Spencer proposed a list of five objectives, viz., self-preservation, the earning of a living, the duties of parenthood, the activities of citizenship, and the occupation of leisure hours.[2]

This was a step in the direction of specific objectives, but it was only a step. Each of the headings or objectives mentioned by Spencer covers a considerable number of subordinate activities, which, according to modern curriculum builders, need to be analyzed out, in order that the corresponding educational processes may be made specific and effective. Spencer's work still remains on the level of vague generality and opinion.

[1] Charters, W. W. — *Curriculum Construction*, p. 10; The Macmillan Company.

[2] Spencer, H. — *Education*, "What Knowledge Is of Most Worth?"

The real work of scientific analysis begins where Spencer leaves off. This work is now being pushed with much vigor. The large aims of the past are to be "replaced with ten or twenty thousand very specific objectives in the form of abilities to do particular things on the part of the pupils, each to be consciously and purposively pursued with school subjects as means."[1]

This obviously represents a sharp break with tradition, which did not concern itself greatly with lists of minute objectives, but patterned its procedure almost exclusively with reference to the needs and demands of the academic specialist. A reaction was inevitable and this reaction has taken the form of a demand for "specific objectives."

At the present time the movement toward specific objectives seems to be gathering momentum. It is favored by two circumstances. In the first place the older view was disposed to rely on faculty psychology and formal discipline, which are now in disrepute. Secondly, the quest for specific objectives calls for careful and detailed analysis, which gives it a certain likeness to scientific investigations conducted in other fields. This movement, accordingly, can claim that it is operating in the name and the spirit of science. As one writer says: "The controlling purposes of education have not been sufficiently particularized. We have aimed at a vague culture, an ill-defined dis-

[1] Peters, C. C. — *Foundations of Educational Sociology*, p. 318; The Macmillan Company.

cipline, a nebulous, harmonious development of the individual, an indefinite moral character building, an unparticularized social efficiency, or often enough nothing more than an escape from a life of work. . . . But the era of contentment with large, undefined purposes is rapidly passing. An age of science is demanding exactness and particularity."[1]

As long as they were protected by the doctrine of faculty psychology the schools could afford to pay little attention to the application of school training to practical affairs. "The theory upon which current curricula have usually been constructed maintains that the content of the curriculum should come from the specialist and be applied by the individual to the activities in which he engages after he has learned them. The specialist in chemistry, for instance, constructs a course in that subject which presents the fundamental facts and principles of the science as the chemist uses them. The same material is taught to chemists, engineers, farmers, doctors, housekeepers, and laymen, with the expectation that each will apply such of it as he may need, to the activities of his vocation or of his leisure."[2]

With the passing of the belief in faculty psychology there comes necessarily a realization that this was taking entirely too much for granted. Hence the

[1] Bobbitt, F. — *The Curriculum*, p. 41.

[2] Charters, W. W. — "Activity Analysis and Curriculum Construction"; *Journal of Educational Research*, Vol. V, p. 357.

insistence that we must abandon the notion of training "in general" and make the work of the schools have a direct bearing on practical activities. The schools must assume responsibility for the application of school work to what goes on outside of the schools. Our curriculum builders consequently are directing their attention to this problem. "The activities in connection with which a subject may be used are analyzed to discover exactly what the individual is to do and then the subject material necessary to assist in the performance of these activities is collected and organized. . . . Arithmetic for the layman may be determined by a collection of arithmetical problems which the layman meets. Mathematics for chemists is determined by an investigation of the mathematics used by chemists. The chemistry used in food courses is obtained by derivation from the content of food courses. The grammar necessary for the correction of errors is secured after an analysis of grammatical errors of school children. The English composition needed by engineers is disclosed by an analysis of the uses to which engineers put the subject."[1]

This method of securing educational objectives is frequently called the method of job analysis. As the name implies, the method is derived from the analysis of the activities that are involved in the performance of jobs in the industries and in business. An expert bricklayer, for example, goes through certain motions

[1] *Ibid.*, pp. 358, 359.

in the performance of his work. It was found, however, when these experts were assigned to the task of teaching beginners that they did not succeed very well, for the reason that they were unable to make an analysis of their own activities so as to tell the beginners just what to do. In this particular case the problem was finally solved by taking moving pictures of skilled bricklayers at work. The pictures made it possible to single out the different operations or motions that were actually made so that all the waste or random movements could be eliminated and the essential activities taught systematically and in detail to beginners. The result aimed at in such analysis is typified by the cooking recipe, which tells us just what to do at every point.

The application of this procedure to curriculum making is not difficult. Let us take such an objective as "good citizenship." At the outset such an objective is exceedingly vague. The first step is to reduce it to smaller units, such as being a good neighbor, a good parent, a careful and conscientious voter, etc. These units in turn become material for further analysis, until we finally get down to "working units," units which are small enough to furnish guidance in the selection of subject matter. Thus the relation between "good citizenship" and mathematics or spelling is likely at first to be obscure; but when good citizenship has been found to include "making a living" and when this has been further analyzed into an occupation that

involves a knowledge of a certain amount of mathematics or the ability to spell a certain list of words, we begin to see a light. The subject of mathematics or spelling then becomes related directly to the major objective, and we also have a clue for determining which parts of mathematics or which particular proficiency in spelling is necessary for the end that we have in view. When the analysis is completed, we are in possession of a mass of concrete material that has a direct bearing on training for citizenship.

It must be noted, however, that the method of job analysis as originally used was more limited in its purpose and application. As Charters says, "In its simplest forms it involves the analysis of definite operations, to which the term job analysis is applied, as in the analysis of the operations involved in running a machine."[1] It would not be far wrong to say that job analysis, in this limited application, aims at the mechanization of conduct, at providing a substitute for intelligence. It undertakes to lay out a fixed course of procedure, with signposts at every corner, so that there is no occasion for independent thinking. In any serious educational program it is necessary to provide more room for the operation of intelligence. Accordingly, the method has been extended so as to include this factor of intelligence. Education is interested in processes that are not just "jobs" in the sense of having to do with "definite operations." These processes

[1] *Ibid.*, p. 359.

include psychical as well as physical factors. Consequently, some of our present-day curriculum builders prefer to use the term "activity analysis." However, the terms job analysis and activity analysis are used more or less interchangeably.

"An activity analysis," says Charters, "is the analysis of both the mental and the physical activities which are carried on by individuals. Used in this broad sense activities include not only what people do, but what they think and feel and will. In its most complicated form the analysis is concerned with a broad range of physical actions, feelings, and purposes, as in the analysis of the activities of women made for the purpose of constructing a college curriculum for women."[1] Or as another writer puts it, activities should normally include "subtle, imponderable, but indispensable factors, such as a sense of responsibility, a disposition to adhere to high standards of workmanship, a vision of one's individual situation within the total workfield, perception of one's rights and duties, and the like."[2]

An analysis of a given activity, therefore, must determine what sort of information is needed for the particular purpose in hand, and also what sort of ideals or aims should be cultivated. Or in Charters' terminology, there must be an analysis of both duties and

[1] *Ibid.*, p. 360.

[2] Bobbitt, F. — "Discovering and Formulating the Objectives of Teacher Training Institutions"; *Journal of Educational Research*, p. 189, October, 1924.

ideals. An application clerk has certain duties to perform. These can be listed, and, if necessary, these duties may be further analyzed so as to resolve them into "working units." On the side of ideals he must have such qualities as "friendliness," "ability to question tactfully," and "keen judgment in answering credit questions."[1]

The new method has also been applied to the analysis of the activities of secretaries. Here the analysis became rather more complex. The secretaries were provided with time sheets on which they accounted for each five minutes of working time during a period of several days. This was for the purpose of determining the duties of secretaries. It was found, however, that the secretaries, like the bricklayers, were unable to make an adequate analysis of their own work, even with the help of a time sheet. So a certain type of interview was devised, for the purpose of rounding up further facts. An appropriate technique was devised also for determining the ideals by which these duties should be directed. On the basis of the information thus obtained it was found possible to train beginners more expeditiously and to improve the work of those who were already in service.[2]

These illustrations are of significance for two reasons.

[1] Charters, W. W. — *Curriculum Construction*, p. 45.

[2] Charters, W. W. — "Principles Underlying the Making of the Curriculum of Teacher Training Institutions," *Educational Administration and Supervision*, September, 1924; and "A Technique for Trait Analysis," *Journal of Educational Research*, September, 1924.

In the first place they show the possibility of developing a special technique for analysis, so that the procedure comes under the head of scientific method. Secondly they show that the method of job analysis is not limited in its application to the analysis of "definite operations," but can be used in connection with radically different subject matter. Such ideals as "friendliness," "ability to question tactfully," and "keen judgment in answering credit questions," may be "working units," but they are not fixed prescriptions. There are no fixed prescriptions for such conduct, except in books on etiquette. The thing is a contradiction in terms. If the learner were trained in the precise details of showing "keen judgment," he would be able to go through with his part without exercising any judgment at all.

The next thing to note is that this extension of the method of job analysis from the analysis of "definite operations" to the analysis of activities, that in a sense are not definite operations, has certain significant implications. It is true, indeed, that every activity is a "definite operation" when we study it in retrospect. Theoretically, at any rate, we can analyze a case of "keen judgment" so as to show just what was done and what sorts of facts and circumstances were taken into account, in very much the same way that we analyze bricklaying. But the analogy does not carry over to the next step. The bricklaying is analyzed in order that the novice may learn to repeat what has

been done. The analysis of the case of "keen judgment," on the other hand, is made not to facilitate a simple repetition, but to improve the quality of subsequent judgments that are made under different conditions. If the conditions did not vary in all sorts of unforeseeable ways, it would be possible for our application clerk to decide questions of credit beforehand, just as the analysis of bricklaying decides beforehand and in detail what a bricklayer needs to do.

To put it differently, the extension of the method of job analysis involves us in the question of transfer of training. The application clerk is expected to learn from a consideration of Smith's request for credit how to deal with the request that is made by Brown. It is necessary for him to exercise keen judgment because the two cases present differences as well as similarities. In the matter of bricklaying, however, we are concerned, not with transfer, but with repetition. This is what makes bricklaying a "definite operation," whereas the answering of credit questions is not.

This difference obviously makes a difference when it comes to teaching. The prospective bricklayer would be drilled in the performance of certain more or less fixed and definite operations. The limitations of such training are illustrated by the case of the man who was taking lessons for the purpose of being cured of stammering. He reported that he was doing very well, but that he found it hard to work "Peter Piper picked a peck of pickled peppers" into the conversation. The

prospective application clerk, on the other hand, would be confronted with a variety of actual or hypothetical cases not yet analyzed and would be expected to make the analysis himself. It would be the teacher's function to guide this process, *e.g.* by calling attention to circumstances which the novice would be apt to overlook, by calling for comparisons between different cases, and things of that sort. Perhaps the work would center on analyzing out and formulating underlying principles through a study of concrete cases. The only way to develop keen judgment in any given field is to exercise judgment on appropriate material.

If we inquire next what constitutes appropriate material, we are back to the problem of curriculum making and the function of activity analysis. In the first place, we may note that the method of activity analysis must not be expected to furnish *all* the material that is needed for curriculum making. It is significant that this method embodies a reaction against the over-emphasis of "logical organization," which takes its clue from the needs of research specialists. As against this over-emphasis the exponents of job analysis insist, very properly, that there are other people in the world to be considered besides scientists. The point of view embodied in the method of job analysis "maintains that the content of a school subject is determined by the use to which it will be put. It quite willingly grants that the chemist shall determine the content of chemistry courses for prospective chemists, but it emphat-

ically maintains that the same right shall be granted for the use of the engineer, the doctor, the housekeeper, the farmer, and the layman."[1] "Quite so!" Moreover, the scientific way of determining the material that is to be taught for these more practical purposes is by means of job analysis. If we grant, however, that logical organization is by no means a matter that is of interest to scientists only, but something that is of importance to everybody, it follows that some of the material for curriculum building must be derived, not by the method of job analysis, but by a consideration of the requirements of logical organization.

It would be possible, of course, to interpret the method of activity analysis in such a way as to make it include the work of the research specialist, although this is not done at present. After all, research is just a special kind of activity, which can be analyzed like any other kind. Whether or not we make activity analysis include the work of the research specialist does not matter a great deal, as long as the importance of logical organization is recognized. Even if we do so include it, however, we still seem to encounter a certain limitation as to what may be expected from the method of activity analysis. As was said a moment ago, judgment can be trained only by being put to work upon appropriate material. The case method of studying law is of interest in this connection. The point

[1] Charters, W. W. — *Journal of Educational Research*, Vol. V, p. 358 (May, 1922).

of departure is a specific case. Other cases are then studied for the purpose of determining likenesses and differences, in order that the appropriate legal principle governing the interpretation of the specific case may be discovered and formulated. Something of the same sort takes place in all "inductive" teaching. The point is that the analysis by which the material appropriate for such teaching is gathered does not seem to be activity analysis—*i.e.* an analysis of what people do—but rather an analysis based upon certain likenesses and differences. Activity analysis may be involved in the process, but it is not the whole story. In short, for the purpose of cultivating thinking or the exercise of "keen judgment" it is necessary to go beyond the material that is furnished by the method of job analysis.

A second limitation to which the method of job analysis is subject has to do with the question of objectives. According to some writers the determination of objectives is simply a matter of applying activity analysis. "Activity analysis is the beginning of all curriculum-making. Find the activities which men perform, or those which they should perform; and train for those."[1] As was shown previously, the notion that any process of fact finding can determine which activities men "should perform" is an egregious fallacy. Having once determined, whether by direct observation or by activity analysis, that men do certain things,

[1] Bobbitt, F. — *How to Make a Curriculum*, p. 256.

e.g. bricklaying, it is possible to go further and determine in detail just how they do these things. But this is not a process of determining objectives; it is a process of determining how certain objectives, which are arrived at in other ways, are concretely realized. As Charters warns us, "The philosopher sets up the aim, and the analyst provides only the technique for working the aim down into the terms of a curriculum."[1] To put it differently, activity analysis is a method for securing *data*, which may be used by the philosopher for constructing an educational program or else may be used for realizing objectives that have already been selected; it is not a method for determining what our program is to be. A general in command of an army needs to secure all the information he can about the enemy, but securing this information is not equivalent to constructing a plan of campaign.

The conclusion that the method of activity analysis does not provide a short-cut to an educational program is emphasized when we consider activities which do not follow a relatively fixed pattern, as in the case of bricklaying, but which construct their own patterns so as to adapt themselves to changing circumstances. Activity analysis may show us that certain attitudes or traits, such as friendliness, courtesy, honesty, are important for the conduct of certain activities. As long

[1] Charters, W. W. — "Functional Analysis as the Basis for Curriculum Construction." *Journal of Educational Research*, October, 1924.

as we remain on the level of more or less routine occupations, the activities in which such traits are expressed may be determined in considerable detail. But they are not reducible to "definite operations"; and situations constantly arise which call for a guiding principle. In the case of honesty, for example, it is not enough to know that a person is expected to pay his bills, to return things that have been borrowed, to avoid stealing, etc. If a new clerk in a jewelry store sells me a diamond at much too low a price, am I justified in keeping it after the proprietor has informed me that a serious mistake has been made? If I discover oil on my neighbor's land, should I inform him or try to buy the land before he makes the discovery himself? To what extent is it honest to conceal one's opinions on economic, political, religious, and other matters? All too often our previous experience fails to cover the new situation. It is worse than futile to proceed as though a more thorough analysis would bring to light a ready-made program for conduct. A builder might as reasonably expect an analysis of the growing tree to reveal patterns for houses and furniture. Activity analysis becomes a vice when it is made a substitute for synthesis, for the creative function of intelligence in reconstructing our ideals and attitudes in the light of new situations.

This creative function, it should be added, does not operate independently of activity analysis. An ideal,

to be significant, must translate itself into specific acts. "Only as courtesy means, for a boy, allowing older people to precede, lifting the hat to a lady, and running errands for a friend, is it significant at all."[1] Of such sort are the particular acts of courtesy which a study of everyday courtesy brings to light. But it is clear that a boy, however carefully trained in such acts, might still be very far from being a Sir Walter Raleigh in a situation not covered by the rules. Genuine courtesy devises its own modes of expression to suit the circumstances of the moment. A living ideal is a growing thing; it is always in process of being made over, so that an analysis of a present cross-section of activities falls as far short of the total meaning as the analysis of an egg falls short of furnishing a complete description of the chick that is presently hatched from it.

In brief, then, the method of activity analysis cannot furnish all the material needed for curriculum construction and it cannot furnish guiding principles or objectives. This is, of course, in no sense a criticism of the method itself, but a protest against the extravagant claims that have been made in the name of the method by some of the theorists of the day. It should be added that others have been more circumspect and judicious in their claims for the method. Charters expresses the function of the method excellently when he says that the investigator simply assembles data, and that he is expected to "turn this raw material

[1] Charters, W. W. — *Curriculum Construction*, p. 32.

over to the school to use as it sees fit."[1] For the purpose of securing necessary data the method of activity analysis is of very great importance, as we are slowly beginning to realize.

There is grave danger that the misconceptions of what may be expected from the method of activity analysis will interfere seriously with the usefulness of the method. It seems clear that the analysis of "jobs," such as bricklaying and plumbing, has led us astray by suggesting a false analogy between such jobs and the duties of life. Life undoubtedly consists of specific activities, if we mean that all activities are necessarily specific when we come to them. But if by specific activity (such as the duties of citizenship) is meant an activity that can be laid out in advance, at least in its main operations, like baking a pie from a recipe, then life clearly does not consist of specific activities. There is no legerdemain of analysis by which the duties of citizenship or parenthood can be made the same sort of thing as copying the movements of a bricklayer or plumber who is an expert in his profession. The notion that life consists of specific activities may have some sort of validity in a society that is stratified in fixed classes. It has no place in a democracy. With regard to ideals, the doctrine of specific activities and specific objectives invites us to take over a set of ideals, imposed from without, which means that we are again

[1] Charters, W. W. — *The New Republic*, "Educational Section," p. 7, No. 12, 1924.

on the way to formalism and routine. It is possible to make ideals as formal and wooden as anything else. The point is illustrated by the small boy who was leaving the room preceded by his sister. Just as the girl was in the act of turning the doorknob she got a terrific thump in the back from her indignant brother, who exclaimed: "You little wretch, don't you know that a gentleman always opens the door for a lady?"

The moral of the foregoing discussion is that the method of activity analysis must be directed by a theory of what education should seek to achieve, and not be regarded as a substitute for such a theory. Activity analysis does not determine objectives, but our objectives determine what sorts of facts are needed, and consequently how the method is to be used. In the end, as is only too apparent, activity analysis furnishes no objectives or ideals. It tells us what is, but not what ought to be. Hence Bobbitt has recourse to consensus of opinion, and Charters is disposed to take the same trail. According to Charters it may be left to "the faculties of the schools, the school boards, and public-spirited citizens generally, to decide upon the ideals which shall dominate the instruction of the youth in the schools."[1] This procedure, if adopted, would be full of danger. From such practice it would be only a step to legislative action, such as we have witnessed at various times during the past few years. In the encouragement of such practice would be the profes-

[1] Charters, W. W. — *Curriculum Construction*, p. 55.

sional equivalent of committing suicide. Are we ready, for example, to let such a question as that of formal discipline or of duty versus interest be settled by a vote of laymen, however public-spirited? Questions of that sort constitute a professional and inescapable responsibility. Educators surely have a responsibility in the matter of the curriculum that goes beyond the application of principles handed down from above. Otherwise curriculum making does not rise above the level of expert carpentry. To reserve the interpretation of such matters as duty, patriotism, etc., to ourselves would, of course, nullify the whole business.

I do not mean that the public is not entitled to a voice as to what shall be taught in the schools. The point is that in such matters as are illustrated by the question of interest and duty the public is necessarily uninformed and is entitled to such guidance or leadership as its professional educators can give. Such questions are not disposed of intelligently by taking a vote, any more than a count of noses on tariff legislation is an acceptable substitute for a serious study of the problem. We are suffering at present from a reaction against theorizing, which is working all sorts of mischief.

In some cases this reaction goes to surprising lengths. In the end there *must* be some way of deriving ideals by the method of activity analysis, despite the difficulties. Thus Bobbitt insists[1] that it must be possible

[1] Bobbitt, F. — "Discovering and Formulating the Objectives of Teacher Training Institutions"; *Journal of Educational Research*, October, 1924.

to discover by analysis what a good teacher should do in exactly the same way that we discover the duties of a plumber by a process of analysis. The method has worked well in the industries; why should it not be equally fruitful in determining a curriculum for teacher training? "When we have so clear a theory — which we approve and which we are ourselves applying in other fields, why do we not apply it to our own?"[1]

It must be granted, indeed, as Bobbitt points out, that there is a certain apparent difference in the two cases. There is no practical difficulty in locating the good plumber, whose activities are to be analyzed. But there are plenty of difficulties in locating the good teacher. "To do this," says Bobbitt, "we must first discover what the true processes of genuine education are. Using these as criteria, we can know in advance what good teachers will be doing, and then we can locate them. But when we know in advance what they are doing, we do not need to locate them. The analyses are already made."[2]

If this is the state of affairs there seems nothing left for the unfortunate scientist except a choice between philosophy and drink. But here Bobbitt shows himself unexpectedly resourceful. Education, as he points out, "is passing through a transitional period." This being the case, the good teacher and the good school system are to be looked for in the future rather than the present or the past. But to a true scientist this is

[1] *Ibid.*, p. 188. [2] *Ibid.*, p. 189.

only a detail. The essential point is that the good teacher is located after all, and business can proceed as usual. "When we set about our work of analysis we should analyze not the activities of the teachers of the past which linger into the present, but rather those of the teachers of the future, which have not yet been widely enough adopted. In our analyses, then, we must foresee the education of the future before it is put into effect by the teachers; we are to analyze the things foreseen, rather than those which now exist."[1]

At this point the bewildered reader is likely to come up for air. "We must foresee the education of the future!" Does this mean that we must predict what will happen after the manner of the astronomer when he plots the curve of a comet? Or does it mean that we should construct an ideal system of education for the future? Unfortunately, the question remains unanswered. But even if we could perform the remarkable feat of anticipating in any significant detail the education of the future, we should be exactly where we are now. The future, like the present and the past, will have good teaching and bad teaching, but unless the teachers of the future wear labels on their backs, like football players, even the prophetic eye of the curriculum builder will be unable to distinguish the good from the bad. We don't get rid of a problem by locating it in the future. On the other hand if to "foresee the education of the future before it is put

[1] *Ibid.*

into effect by the teachers" means that education should be based upon a philosophy or social program of some sort, why be mealy-mouthed about it and keep up the fiction that it is all a matter of analysis?

It is intriguing, to use a hackneyed term, to visualize Bobbitt bending over the entrails of the body politic and deciphering their portent, with Charters in the background trying to figure out how his technique is to be adapted to the analysis of these elusive teachers of the future. However, it is only fair to Charters to remind ourselves that he explicitly limits the function of activity analysis to the assembling of what he calls "raw material" to be placed at the disposal of the curriculum builder. I certainly have no disposition to quarrel with this view. Moreover, Charters has not as yet shown any inclination to import the material for his analyses from the future — whatever that may mean. As a matter of fact, there is room for the suspicion that Bobbitt likewise does not depend greatly on revelations from the future. The question of good citizenship is as perplexing as that of good teaching, but when this theme is discussed we find no suggestion that we look for our models in the next century. But neither, as is freely admitted, can we expect activity analysis to solve the question of what constitutes good citizenship. Hence we must have recourse to something else. It is "a problem of what is the best hypothesis."[1]

[1] Bobbitt, F. — *How to Make a Curriculum*, p. 100.

At first sight this looks as if the ship were going to make port after all. When all is said and done, good citizenship is a problem that must be dealt with in some manner other than activity analysis. This is, of course, the very point at issue. Moreover, it is a problem upon which everything else depends. If we start out with the wrong notion of citizenship, then obviously all our activity analysis is just a matter of making the error more deadly and irretrievable. One might reasonably expect, therefore, that the curriculum builder would address himself to this problem as carefully and systematically as possible.

This expectation, however, is not realized. Apparently, Bobbitt finds it hard to believe that a problem can be a serious problem unless the solution of it calls for the application of some special technique. At any rate the problem is shunted aside with the most amazing nonchalance. It is not really a problem at all, but just a kind of busy work. By formulating a hypothesis is meant the listing of such "abilities" as may happen to look good to us, for example, "the ability to think, feel, act, and react as an efficient, intelligent, sympathetic, and loyal member of the large social group," "the ability of the citizen to do his share in the performance of social function," etc. "Any experienced superintendent," so we are told, can do this work; which is true enough, since most of the abilities thus listed are so vague that anybody under the canopy may subscribe to them. This is the same sort of

leadership as was offered by the candidate who declared that, if elected to the Presidency, he would execute faithfully the orders issued by Congress and that his platform was the American flag.

There is an old saying that you can lead a horse to the water, but you can't make him drink. It is possible to secure the admission that there is a problem lying back of activity analysis, but it seems impossible to make the admission count for anything. In spite of the admission the notion persists, with the tenacity of a fixed idea, that activity analysis can be made to cover the whole ground. The use of hypothesis is just a temporary and disagreeable necessity due to the fact that "the science has not been established." After all, activity analysis is the thing; and so we are back where we began. Some day — some happy day — the disagreement and uncertainty about good citizenship will be dispelled by scientific analysis. The exact functions of citizenship will all be described and arranged to the last detail, each with a pin stuck in its back, like the butterflies in the collection of an entomologist.

My purpose in the foregoing discussion is to make clear that curriculum construction involves a large question of direction or purpose, which our zeal for activity analysis is disposed to overlook. It is a question, if you like, of educational statesmanship. The nature of that question is indicated in the pamphlet by Dewey to which reference was made in the

preceding chapter.[1] According to Dewey, if I interpret him correctly, the struggle over the curriculum represents an attempt by democracy to think clearly about its own meaning and purpose. It wants a larger measure of opportunity for the individual. But it does not understand clearly what this means or how it is to be attained. From the standpoint of a democratic program this is our outstanding problem. It is only too easy to train a youngster so as to make him just a cog in a machine, to make the ideas, the beliefs, the attitudes which he acquires a limitation upon his development instead of a means for future growth. If our chief concern is to make provision for flexibility, both in the individual and in the social organization, then, as I tried to indicate previously, we are confronted with such problems as individual differences, the context to be provided for the material that we attempt to teach, the place of logical organization, and a host of others — all of them growing out of the attempt to take account of individual capacities and tendencies on the one hand and the conception of a democratic social order on the other. There is no prospect of getting anywhere with this as long as we cling everlastingly to activity analysis "like a sick kitten to a hot brick." The problem calls for historical perspective, for theory of mind, for insight into the educational significance of social institutions. People have written about the social significance of education since the time of Plato,

[1] Dewey, J. — *The Educational Situation.*

but the subject has never, so far as I am aware, developed a special technique, such as we usually associate with the name of science. The problem reaches out into too many directions, it involves too much heterogeneity of material, it is too intimately bound up with our whole conception of life. It is the sort of thing which in the past we have commonly called philosophy.

No reasonably well-informed person can have the slightest desire to minimize the services of science. There are all sorts of problems in connection with curriculum construction for which activity analysis is indispensable. We all know what science has done for the progress of mankind. It is a curious irony that obstructions to further progress should now be raised in the name of science. Perhaps this uncritical enthusiasm for science will soon pass away. If not, we may yet have occasion to pray to be delivered from this obsession by the idea of scientific method.

Questions and Exercises

1. Explain and illustrate how the use of the method of job analysis is related to the logical organization of subject matter.
2. Point out what you consider to be the important likeness and difference between the analysis of bricklaying and the analysis of good citizenship.
3. Indicate and illustrate how the aim to cultivate thinking bears on curriculum making.
4. State and illustrate the difference between specific aims and the kind of aims that are called ideals.
5. Give some instances where, in your judgment, job analysis is needed in curriculum making.

6. Show by illustration how the data secured by job analysis might be put to very different uses by different curriculum makers.

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CHAPTER VI

THE "SOCIOLOGICAL DETERMINATION" OF OBJECTIVES

It is sometimes said that education has been living on tradition. Its ideals and methods were determined in a remote past. The present ferment in education is due, first of all, to the social changes that have taken place. These changes have been in the direction of breaking down the barriers between social classes and between cultural and vocational education. The colleges have been compelled to enrich their offerings vastly, and our educational system generally has become much more sensitive to the demands of vocational needs.

In spite, however, of all the changes that have taken place there is still considerable dissatisfaction with higher education. "Professors and teachers of the liberal arts still reflect in a measure the ideals and methods of the cloister and of the leisured world in which their calling found its aristocratic and exclusive origins. Quite naturally, they are usually strong in their faiths, and resentful of scrutiny into the social validity of their purposes; and it would be surprising if, under the circumstances, they proved themselves able

to evaluate in any fundamental way the effectiveness of their means and methods in promoting culture and social worth under modern democratic conditions."[1]

The reason for this continued dissatisfaction, in short, is that the colleges, while accepting new subject matter into their curricula as it is forced upon them, do not adopt the new purposes or aims that are necessary to make these changes significant. The demand that lies back of these changes is that the colleges be brought somehow into closer relation with "life." In other words, there is a demand for a type of education that recognizes new standards both of culture and of vocational efficiency. A change in subject matter without a change in standards or objectives does not, after all, take us very far. The history of science teaching is a case in point. The reformers who led the struggle to secure a place for science in the curriculum entertained the most roseate hopes, which have ended largely in disillusionment. The study of science was expected to prove a panacea for most of our educational ills. The high purposes of liberal education would then be effectively realized. Eventually the sciences were admitted to the curriculum. What has been the result? "In spite of laboratories and innumerable courses in college and secondary school, do not these purposes still remain largely unrealized? What, after all, for the average youth, has the prevailing study of physics,

[1] Snedden, David — *Problems of Educational Readjustment*, p. 66; Houghton Mifflin Company.

of chemistry, and of biology to do with liberal education? The methods currently employed are those of formal vocational education; high school and college teachers organize their work as if their sole business were to prepare forthcoming specialists in teaching, medicine, and engineering. Once in a generation each institution may get a real teacher of science from the standpoint of inspiration, insight, culture — in a word, liberal education; but the rank and file are technicians only. The popular verdict is that science, pure or applied, is not yet in practice a feature of liberal education."[1]

In order, then, to make higher education properly effective it is necessary, so we are told, to secure a change of attitude or outlook. It may be conceded at once that this view represents a large element of truth. Our colleges have not been greatly concerned to keep in touch with the spirit and purpose of the democratic movement. All too often they have been the sanctuaries of ideals that had scant understanding and appreciation of democracy. But what sort of change in attitude or outlook is required? The educational sociologists of to-day, as represented by David Snedden, tell us that "from sociology must come answers to the question, What shall be the aims of education?"[2] According to this writer "the proper province of this

[1] *Ibid.*, p. 78.

[2] Snedden, David — *Sociological Determination of Objectives in Education*, p. 15; J. B. Lippincott Company.

study is the entire range of educational aims, traditional and modern, social and individual."[1]

It is evident that this contention is just another expression of the view that all educational problems are scientific problems in the sense that they can be solved, theoretically at least, by the application of the technique which science has invented for the discovery and testing of facts. This is a momentous proposition. Consideration of it may be postponed for the moment, however, until we have examined in some detail Snedden's procedure in the "sociological determination of objectives in education."

This procedure has a certain simplicity. If we view education from the standpoint of sociology, it becomes an agency for establishing a correct relationship between the individual and the social order. Following this lead we note next that "Man stands in a twofold relationship to the world; he is a producer of utilities, and also a consumer; as a producer, he writes books or constructs machines, or produces wheat, or builds houses, or heals the sick, or conveys travelers; and for any of these activities he can be trained. As consumer, however, he is inspired by books, served by machines, nourished by bread, sheltered by houses, healed by physicians, and carried by railways, and for the wise and profitable exercise of these activities he can also be trained."[2]

[1] *Ibid.*, p. 16.
[2] Snedden, David — *Problems of Educational Readjustment*, p. 71.

Viewed from this standpoint we can see readily how far our traditional college courses fall short of the spirit of liberal education. The methods employed are not, as a rule, adapted to the development of good "consumption," but rather to the development of good "production." In other words, the methods have been the methods of vocational education and the product, such as it was, resembled technical expertness rather than sweetness and light. We have, so far, hardly tried to teach music, for example, primarily for appreciation, or the scientific attitude toward a social activity such as modern reporting and publication of alleged news, or aesthetic taste "by the exercise of the constructive interests of the amateur furniture maker and interior decorator — the work of the manual training shops." [1]

Even this criticism, however, is still too favorable to the colleges and to traditional education generally. Our education has been vocational in spirit, rather than liberal, but it cannot plead vocational efficiency in extenuation of its shortcomings, because we have been afraid to train directly and openly for vocation. For one thing, we have not recognized frankly the social need of great variety and definiteness in vocational education. "Vocational education in and through schools (in each case specially adapted to the requirements of the occupation for which preparation is being given) we are clearly destined to have in endless varieties

[1] *Ibid.*, p. 84.

during the next few years."[1] Secondly we may expect a sharper differentiation of method. "Vocational education and liberal education require essentially unlike methods, and it may be expected that, as a rule, teachers habituated to the procedures of the one will prove correspondingly unadapted to the necessities of the other."[2]

The difference in method is related directly to the difference between education for production and education for consumption. Stated broadly, the former aims at effective doing while the latter aims at appreciation, at the cultivation of interests and tastes. The two types of education, therefore, have little in common. Both are necessary, but nothing is gained and much is lost, if we harbor the delusion that they can be mixed. "A democracy surely needs liberal education, widely developed, as something distinct from vocational capacity. The lawyer can be given, somehow, interests in music and art quite unconnected with his vocation; the farmer may have his tastes for literature, sociology, or astronomy; and the machinist may touch with some appreciation in his leisure hours, such remote fields as the plant world, or the interior decoration of a home."[3]

A further word on the difference in method is necessary to complete this exposition. We are concerned here with two different kinds of result or outcome.

[1] Snedden, David — *Sociological Determination of Objectives in Education*, p. 67.

[2] Snedden, David — *Problems of Educational Readjustment*, p. 187.

[3] *Ibid.*, p. 69.

"The objects to be attained in teaching a pupil to spell, for example, differ essentially from the objects to be attained through having the same pupil listen to a good musical recital or witness a dramatic performance." The difference is the difference between the attainment of skill and the attainment of appreciation. In the one we can look for a definite "ability to *do*, to *execute*, to *express in action*." The result in this case is definitely measurable. Not so in the other case. Here "we expect absorption, assimilation, growth, as results, but the final outcome is so remote from the original stimulus that we do not ordinarily seek to trace connection."[1] This difference in result or outcome involves a corresponding difference in method. Subjects that aim to cultivate the "ability to *do*, to execute, to express in action" should be taught as "hard work" subjects, whereas the subjects that are concerned primarily with absorption or appreciation should be treated on the level of "high-grade play."

This, in brief, is the outcome of what purposes to be a "sociological determination of objectives in education." It has the merit of not being tame. The old aloofness of education from everyday life is eliminated at one stroke by the dictum that education must have reference to making the individual both a good producer and a good consumer. And this dictum is provided with teeth and claws by the further behest that the

[1] Snedden, David — *Sociological Determination of Objectives in Education*, p. 49.

"ability to do" must be cultivated by a teaching procedure that is widely different from the procedure which is considered appropriate to the cultivation of appreciation. In other words, this sociological determination of objectives appears to introduce an unlooked-for simplification by centering everything on the categories of production and consumption with a corresponding simplification of teaching method.

Let us now try to view this program in a wider perspective. As was pointed out in earlier chapters, the democratic movement in education embodies a protest against an antecedent social order consisting of a working or "producing" class and a leisure or "consuming" class. In a democratic organization every individual, as Snedden says, is expected to be both a producer and a consumer. This new ideal calls for a revision of educational theory and practice. It appears, however, that this revision can be made along either of two lines. One of these consists in combining in each individual the education designed for efficient production with the education that is needed for more satisfactory consumption. This is the plan followed by Snedden. The other alternative is to seek for a new integration of vocation and culture. Instead of compartmentalizing vocation and culture, and disposing of the problem of objectives by providing each individual with two compartments instead of merely one, this rival program undertakes to make vocation the center for a broad social outlook.

There can be no question as to which of these two programs is the more genuinely democratic. The chief fault of the older education was that it did not humanize the individual except incidentally and more or less accidentally. In so far as education is limited to the development of efficient production it is obviously lacking in humanizing qualities. But an education that is concerned only with "consumption" is obviously in much the same case. History offers numerous instances of highly developed civilizations in which the working classes presented a spectacle of misery and degradation that would not be regarded as tolerable at the present time. That is to say, the education which fitted the individual for high-grade consumption was compatible with a downright appalling lack of social sensitiveness. It is not easily apparent by what process of alchemy these two forms of education, one for production and one for consumption, both of them being conspicuously lacking in humanizing qualities, will produce a set of Christian virtues if they happen to be combined in the same individual, particularly if they are kept in separate compartments. It does not follow, for example, that a lawyer will be less merciless and grasping in his dealings with others because he shows a fondness for music and painting during his leisure hours.

From this point of view Snedden's program is surprisingly tame after all. What it proposes is but little more than the revamping of an ancient ideal. How

completely it surrenders to tradition is evidenced by the insistence that culture and vocation must be kept sharply asunder, even though every person should have a little of each. The whole spirit of the democratic movement in education, on the contrary, has been toward an integration of vocation and culture. The revamping consists mainly, as was said a moment ago, in the provision that each individual must be equipped with two compartments, instead of only one, and the further provision that each of these two compartments calls for a distinctive teaching method. Vocation is not made a means of expressing the whole personality but remains, as in the days of the Egyptian taskmasters, a matter of drudgery and routine, enlivened only by intermittent joyrides into the dreamland of culture. To continue the figure, democracy is made to mean a Ford for everybody, so that no one may be debarred from these excursions. The pupil who devotes from seven to ten hours of the "heart of the day"[1] to vocational studies and takes violin lessons in the evening illustrates, so far forth, Snedden's idea of a well-rounded man. This separation of vocation from culture is the fundamental issue between aristocracy and democracy. The curious thing about this sociological approach to education is that it takes no interest in the cultivation of social context.

Granted for the sake of the argument that it is expedient to deal with the educational problem in terms

[1] *Ibid.*, p. 83.

of production and consumption, there is nothing, I submit, in the subject of sociology which decides definitively that production and consumption must be walled off from each other in the way that Snedden proposes. Whether or not this is desirable depends on what sort of society we should like to have. Sociological studies can furnish us with a mass of data that must be taken into account, but they do not, *ipso facto*, furnish us with a program. Snedden's educational philosophy sacrifices both social insight and "logical" organization to preconceived social needs. These social needs are efficient production and consumption as these were conceived in days gone by. He carries over an educational outlook that was nurtured by an aristocratic civilization, and for this outlook he claims the sanction of science. What he offers us is not a "sociological" determination of objectives, but a determination of objectives by prejudice and habit.

How far short we come from a *bona fide* sociological determination of objectives becomes still further evident if we take note of Snedden's procedure. A man who is liberally educated, so we are told, "uses good literature rather than bad; he exacts from other producers expert rather than untrained and fraudulent service; in his contacts he puts a premium upon good taste, refinement, and right morality; and in the sphere of more material consumption his demands lead to improvement both in the quality of goods he obtains

and in the social conditions surrounding their production. His utilization elevates himself and also the world because of his appreciation, his insight, his sympathy."[1]

In brief, good consumption consists in "good taste, refinement, and right morality." But what are our standards in these matters? Apparently the test for good taste, refinement, and right morality is good consumption, so we are back to where we began.[2] The sociological determination of objectives in education turns out to be the same order of industry as that of a kitten chasing its tail.

At one point indeed we escape from the charmed circle, and reach an objective standard. "It is now certain that we must reconstruct almost all our current standards of value of high school subjects. We must endeavor to proceed from the foundations of the useful attainments (in the broadest sense of the word 'useful,' to include the spiritually and culturally useful as well as the materially useful) as shown by men and women in present-day society who are substantially above the average as respects those qualities which, according to a consensus of judgment of competent critics, are 'good'—good for the individual, and good for society."[3] Another consensus! One sometimes gets the impression

[1] Snedden, David — *Problems of Educational Readjustment*, p. 116.

[2] *Ibid.*, pp. 71–75.

[3] Snedden, David — *Sociological Determination of Objectives in Education*, p. 150.

that American educators will go to any lengths rather than have an opinion of their own.

In the present case the reference to consensus of opinion is made so casually as to make it appear that the whole matter is quite incidental. Perhaps the shock would otherwise be too great. We start out with the faith that it is "to sociology and studies prosecuted by sociological methods we must look for criteria of scientific aims in all education."[1] But the methods apparently reduce to methods for taking a vote, and the scientific determination of objectives evaporates into a recommendation to try a questionnaire.

The futility of taking appeal to consensus of opinion was discussed earlier in another context.[2] The net result of such a procedure is either to cover up real differences in point of view or else to make the consensus a means for perpetuating the prejudices of the past. The irony in the present enthusiasm for scientific method lies in the fact that tradition is placed in the saddle and acclaimed in the name of scientific method. The determination of objectives except by the use of scientific technique is frowned upon. But this technique is adapted only to fact-finding, to a determination of what is, not of what ought to be. Consequently, it furnishes no objectives at all, and it becomes necessary to make use of consensus of opinion or sleight-of-hand. In other words, we set up ob-

[1] *Ibid.*, p. 18. [2] See ch. iv.

jectives that have been derived from the past and have never been subjected to adequate criticism.

It will be said, perhaps, that the situation with which we are confronted is not a matter of arm-chair philosophizing, but of hard cold fact. However much we may dislike it, vocation and culture will not mix. "A variety of school habits acquired in the process of obtaining a general education are antagonistic to a workmanlike attitude,"[1] so that the cultural interests of the learner must be pursued "quite unconnected with his vocation." We have simply closed our eyes to the differences. "It is unfortunate that educational psychologists have not given more attention to the fundamentally unlike character of the learning processes here contrasted."[2]

If we scrutinize this "fundamentally unlike character" we come upon some more uncritical borrowing from the past. It is not denied, of course, that there is a difference between hard work and play, high grade or otherwise. But the notion that this difference points to a fundamental difference in procedure in the teaching of different subjects has no basis except in the doctrine of faculty psychology. If we start with a detached mind divided up into separate faculties there is a certain plausibility in Snedden's view. The faculty of appreciation in that case is presumably

[1] Snedden, David — *Problems of Educational Readjustment*, p. 190.

[2] Snedden, David — *Sociological Determination of Objectives in Education*, p. 49.

quite different from the other faculties, and "high-grade play" may be the very thing to recommend. But if we reject the notion of faculties and make education consist in progressive world-building or a progressive reinterpretation of experience, then mind becomes a name for this function of reorganization in which hard work and appreciation go hand in hand. New appreciations from this point of view are the outcome of new insights which come to us as a result of discovering new meanings in old facts. Such discovery is what we mean by world-building or by reconstructing the facts of our experience through the labor of thinking. There can be no significant development of appreciation without sustained effort in thinking.

This fact cuts both ways. In order to gain new appreciations we must engage in thinking; and conversely where effective thinking is going on there is bound to be new appreciation. In other words, if our "hard work" subjects involve thinking they are bound to reward us in terms of new appreciations. If they do not have this result it is because they do not get off the level of routine and drill. There may be long stretches of the road as everyone knows, where the pain of intellectual labor overshadows the appreciation. But if appreciation is not a final outcome there is something seriously wrong. Either that, or the whole of our modern psychology is on the wrong track. The proposal to keep "hard work" and "appreciation" apart, or at all events to make no effort to unite them,

is intellectual atavism. It is the sort of thing that is to be expected, if we make no attempt at the serious cultivation of a social program in education.

The categories of "production" and "consumption" unintentionally emphasize the fidelity with which this educational doctrine copies the past. As was intimated previously, Snedden's innovation with respect to the curriculum consists, first, in giving to each individual a little of both kinds of education and, secondly, in educating for consumption in a wider variety of subject matter than before. On the side of method he proposes to recognize the distinction by applying radically different forms of teaching. The objections urged in behalf of democracy against the old ideals of culture and vocation are mainly disregarded. It is interesting to notice that in order to reorganize education in terms of production and consumption these terms undergo a surprising extension of meaning. In their original intention these terms had reference to the material conditions of living. The producer is a person who provides what we eat and drink and wherewithal we are clothed. The consumer's rôle consists in eating and drinking and wearing the aforesaid clothes. In Snedden's scheme, however, these functions are more intimately related. If I read a newspaper I am a consumer. If I discuss what I have read with a neighbor, I become a molder of public opinion, or if I explain what is in the newspaper to a child, I am doing the work of a teacher; in either case I am a producer.

Or if I write a letter of protest to the editor to be published in the *vox populi* column of his newspaper, I am again a producer. Or if, as a teacher, I read a book which refreshes my soul and at the same time furnishes me with material for my next lecture, I am presumably a consumer and a producer in the same operation. I am a consumer because I enjoy what others have wrought, and I am a producer in that I am plying my trade by gathering material for classroom purposes. There is no harm in making such classifications if it pleases one to do so. But neither is there any good in it. The distinction gives no clue to the nature of the objectives that should be set up, nor does it shed any light on the nature of the learning process. And the distinction becomes vicious when it is used to slur over the fact that studies which impart social insight and aesthetic appreciation, although classed under the category of consumption, may have a very real bearing on the quality of production.

To obviate possible misinterpretation it should be said that there is no intention of dismissing sociology as irrelevant to the work of curriculum construction. As was shown in chapter iv, there is constant need of the application of scientific method, and this takes us at many points over into the field of sociology. This is particularly the case when we are dealing with the problem of educating for vocation. Just what is meant by sociology seems never to have been entirely clear. But so far the term has not been made to include

philosophy of education, and the main point of the foregoing argument is precisely that sociology is no substitute for it. So long as we nurse the delusion that objectives can be got by "sociological determination" we are obstructing the development that must come if education is to make its proper contribution to the advancement of democracy.

Questions and Exercises

1. How would you account for the fact that the science of sociology is expected to furnish educational aims? What assumption is involved in this expectation?

2. Indicate the respects in which the modern doctrine of education for production and for consumption represents an advance over traditional education and where it falls short of the requirements of the democratic ideal.

3. Give an illustration showing how the separation between "hard work" and "high-grade play" may work to the disadvantage of both.

4. Point out the bearing of education for production and for consumption on the question of duty versus interest.

5. State what you consider to be the bearing of this type of education on logical organization of subject matter. Give reasons.

6. In view of the great emphasis upon vocational training that is involved in education for production, what do you think should be the policy of the public schools regarding vocational training? Give reasons.

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CHAPTER VII

THE PROJECT METHOD

It has been said, with some justice, that education is a breeding place of fads and fancies. All sorts of notions spring from its soil to enjoy a brief popularity and then disappear again. Perhaps all of us at some time or other have followed some Moses who promised to lead us to the promised land by a direct route, only to find that the trail came to an end in a blind alley, from which we had to find our way back home alone. The result is naturally that we have grown a little more cautious. We do not respond quite so readily perhaps. The project method is a case in point. We haven't quite made up our minds about it. Is this method a genuine discovery, a new principle, or is it merely another false alarm?

This question is not one that can be answered offhand. We are met at once with the difficulty that it is not easy to decide what is meant by the project method. Is it a method of teaching or a method of curriculum construction? Some writers say that it is chiefly a method of curriculum construction, of organizing our educational material. Charters, for example, says that a project is "a problematic act carried to completion in its natural setting."[1] To teach a boy by

[1] Charters, W. W. — *Curriculum Construction*, p. 139.

having him build a chicken coop or overhaul an automobile would be teaching by the project method. The boy would be working in a "natural setting," *i.e.* he would be dealing with practical, everyday difficulties and needs. Another writer, C. A. McMurry, agrees that the term "project" has reference to the organization of material, but is not so much concerned with "natural setting." He identifies projects with what he calls "central teaching units" and says that these units should be organized as much as possible like the things in everyday life, but they do not need to be practical. The purpose need not be to do something, but to learn something. A third writer, Kilpatrick, says, or seems to say, that "project" does not refer to organization of material at all. Anything may be a project, regardless of how it is organized. Whether a given task or undertaking is a project or not is determined by the pupil's attitude toward it. A project, to him, is a "wholeheartedly purposeful activity." From this standpoint the term project seems to be pretty much identical with interest.

This variety of definitions is confusing. At the outset, however, the term had a fairly simple meaning. Both the term and the method had their origin in the education of architects. It came into American education chiefly through the teaching of agriculture in high schools. When agricultural courses were introduced into the high schools it was found difficult to provide appropriate "laboratory" facilities in the

shape of a school farm with its crops and live stock. In lieu of these a place was found for "home projects." The pupils who lived on farms were set to work on such undertakings as the selection of seed-corn, the actual care of poultry and cattle, the growing of crops under actual farm conditions, the management of the dairy, and similar problems. This frequently involved considerable reading and experimenting. It afforded an opportunity and a stimulus for acquiring a great deal of information, as anyone can appreciate who has observed how highly educated the average farm boy is in the mechanism of the Ford automobile. Moreover, it is a very real sort of education. When the boy talks about the carburetor or the vacuum tank, for example, he knows exactly what he means. His education is very different from that of the boy who defined a vacuum as "a large empty space where the Pope lives."

As compared with this new departure, our educational practice has tended to place the emphasis on "logical" rather than "psychological" organization of subject matter. This criticism is sometimes expressed by the statement that the traditional method consists in teaching each subject as though the pupils were to be trained to become research specialists in that particular subject. Teaching is thus made technical rather than human. It is not uncommon, for example, to see children take up number work with real enthusiasm. They count and add and subtract endlessly for the sheer joy of the thing. They are thrilled by the dis-

covery that things have relations of number, just as the character in one of Molière's plays was thrilled to learn that his own everyday talk was what we call prose. But this early enthusiasm all too often does not last very long. The reason is simple. All this counting and adding and subtracting leads to nothing but more counting, more adding, and more subtracting; it does not lead to new discoveries about the world. The kind of training that the pupils get is the kind that is adapted to producing technical mathematicians. But it is rarely that a youngster wants to be a technical mathematician. He wants to learn more about this fascinating world in which he lives, and when this hope is disappointed the initial enthusiasm fades away into dull routine.

How to make the work of the classroom significant for the larger life outside of the school is an outstanding educational problem. In primitive forms of society there is no such problem. Children grow into full membership, not through organized and systematic schooling, but through direct participation in adult life. The boy comes into his heritage of social experience by assisting his elders in their activities, such as farming, hunting, and fishing. But such education does not meet all the demands of our complex civilization. As things now are a boy could hardly expect to grow into a man of letters by securing a job as a printer's devil, to become a medical man by starting as office boy for a physician, or to blossom into a college graduate by

serving as janitor in one of the campus buildings. Mere association will not turn the trick. Participation in the more complex and technical forms of modern life is impossible without preliminary training. Reading must be learned, not from newspapers and magazines, but on the basis of first readers; and mathematical ability cannot be acquired by serving as apprentice to an engineer, or to the cashier of a bank, but from number work organized especially for the purpose. Modern society can maintain itself only by providing a special environment, in the form of school curricula, equipment, and teachers, for the education of its children.

This necessity has the disadvantage that it tends to create a gap between school environment and everyday life. Our educational materials take on an organization of their own, with no very direct bearing on the activities that are going on outside the school. Moreover, the racial experience as embodied in our libraries, laboratories, and museums bulks so large that the emphasis in education naturally shifts toward learning as an end in itself. As James Harvey Robinson has pointed out in *The Humanizing of Knowledge*, our knowledge has become dehumanized. The school has become a world by itself, separated by a wide gap from the affairs of practical life. This fact is responsible for most of our educational ills. It results naturally and inevitably in verbalism, learning by rote, and lack of serious interest.

To put it differently, our educational practice has tended to place the emphasis on "logical" rather than "psychological" organization of subject matter. As a result, learning inevitably became an unreal and artificial thing.

It is not surprising, therefore, that the method exemplified in the "home projects" previously mentioned attracted the attention of teachers in other fields. This method avoids the verbalism or bookishness with which education is so extensively afflicted, it is easily adapted to the native interests of the pupils, and it gives effective training in thinking. It seems reasonable to expect that the method can be extended so as to induce a different attitude toward school work in general by linking up school experiences with other experiences and thus making school work more concrete and meaningful to the pupils. In one form or another this expectation crops out in the various attempts to state the nature of a project in terms of a definition; as appears if we run our eye over the following statements:

A school project is a problem, the solution of which results in the production of some object of knowledge of such value to the worker as to make the labor involved seem to him worth while.

A project is a problematic act carried to completion in its natural setting.

A project is a unit of educative work in which the most prominent feature is some form of positive or concrete achievement.

A project is a problem that requires the use of material in its solution.

A project is a purposeful activity.

A project is a complete purposeful experience.

A project is a wholeheartedly purposeful activity carried on in a social context.

It is not difficult to discern underneath the divergences of these definitions a certain common purpose or attitude, which is to make the schoolroom continuous with the rest of life. As things are at present, when the child enters the school he is likely to leave his everyday world behind him. He finds himself in an environment that is alien to his interests and purposes. It is for the purpose of remedying this state of affairs that the study of projects is recommended, with the emphasis on "natural setting," "concrete achievement," "worth-whileness," "purposive activity," and "social context."

Expressions of their sort, however, are too general to mark off the distinctive feature of the project method, as employed in agricultural education. It is worth while to try to define this original meaning of project method more closely both because this meaning seems to offer a contribution to curriculum construction and teaching method and because a definition of this meaning furnishes a convenient point of departure for a consideration of the attempts that have been made to give a wider meaning to project method.

As was said before, the agricultural extension workers centered their educational work on certain activities that are connected with the business of farming. They selected projects that had to do with such under-

takings as the growing of corn, the raising of pigs and poultry, the management of a dairy, the canning of fruit, and so on, in great variety. The selection of these projects required attention and skill. On the one hand the project might be so simple as to offer no reasonable opportunity for learning. On the other hand the project might offer no such opportunity for the reason that it was too difficult a project. A project, for example, such as keeping the weeds out of the potato patch would not ordinarily constitute an intellectual problem and therefore would not be likely to prove educationally significant. Nor would a boy learn much from a project like protecting oats against "rust," but for the opposite reason. It is too much of a problem. A project of this kind requires the intellectual equipment of an expert. The ideal problem is one that offers certain difficulties which require study and the gathering of information, but which do not require so much study that the close contact with the problem is lost. For example, if a boy should undertake to study tuberculosis in cattle, he would have to engage in extensive studies in chemistry and physiology, the bearing of which on his "project" would be only indirect. In a real project the connection between studying and carrying on the job must be sufficiently close so that the job determines directly what is to be studied and gives opportunity to try out the new knowledge from time to time. The studying and the job must proceed abreast.

When this relationship is maintained the studying or learning is clearly instrumental to a further purpose, and this fact puts us on track of a definition. A boy working on a project like the raising of corn, for example, would organize his intellectual work with reference to this particular topic. He would not take a systematic course in botany or in chemistry, but would select only such material as dealt with his particular problem of planting and cultivating and the fertilizing of the soil, and he would skip everything else. His knowledge would have a practical rather than a theoretical type of organization. His purpose would be not to acquire knowledge, but to grow corn. Learning would be simply a means to an end and not an end in itself. The project method, in this application, is the method of *instrumental* or *incidental learning.*

There is no doubt that projects of this sort can become tremendously effective means for realizing the ends of education. A boy who undertakes to install a radio is bound to learn a certain amount of physics, and with some boys this form of learning is much more effective than learning from a book. There is a very real place in our educational system for the method of incidental or instrumental learning. Moreover, the method as thus defined is capable of considerable extension. A resourceful teacher can readily devise projects having to do with the telephone or the radio or the gasoline engine, with a view to teaching his pupils some of the facts and principles of natural science. Or he

may get up debates or historical plays, as a means of teaching his pupils some facts of history. On lower levels we find such projects as play stores or elementary carpentering, which offer possibilities in connection with arithmetic. These may very well be genuine projects, as previously defined. From the standpoint of the teacher they justify themselves because certain learning is involved. From the standpoint of the pupil they are projects because this learning remains on the level of a means to a further end.

It does not follow, however, that the project method, in the sense in which we are using the term just now, can be made to cover the whole field. However cordially its merits may be recognized, as a universal method it suffers from certain obvious defects. By definition it takes no account of either logical organization or "social insight." Its spirit is the spirit of immediate practicality which is the spirit of an exclusive vocationalism. This is no objection to the method, unless we apply it too widely. If we do so, we find that our practicality overreaches itself. Learning that is limited to this method is too discontinuous, too random and haphazard, too immediate in its function, unless we supplement it with something else. Perhaps children may learn a great deal about numbers from running a play store or bank, but this alone does not give them the insight into the mathematics that they need to have. They may learn a great mass of historical facts from staging a play, but this is not a

substitute for a systematic study of history. Learning for immediate purposes, or incidental learning, is too much a hit-and-miss affair — it dips in here and there, but it gives no satisfactory perspective, no firm hold on fundamental principles.

This is not a criticism of the project method, but an attempt to show its limitations. Since the principle is limited in its application, it does not fully meet the demand for a kind of education that is not tied up so closely with immediate demands. So the idea naturally suggested itself that the method might be extended, that it might be possible to retain the virtues of the project method without this limitation. This has been attempted by various writers. It has proved a difficult undertaking, which is not surprising, since it is not easy to discover anything that is distinctive about the method, if we take away the feature of learning for the purpose of meeting an immediate, practical need. In order to make the method cover other kinds of learning, which are not dominated by the idea of immediate practicality, it became necessary to change the meaning of project method by identifying its essential nature with something other than this type of learning. The attempt to do this has introduced considerable confusion, so that the term project method has tended to become a name for a conglomeration of ideas, and not for a definite guiding principle.

An instance of such an attempt is furnished by C. A.

McMurry.[1] The feature of the project method that catches McMurry's eye is not the trait of learning with reference to an immediate purpose, but rather what appears to be a unique organization of subject matter. As was said a moment ago a boy who is working on a project organizes his knowledge with reference to the undertaking in hand. He does not make a "systematic" study of the subjects from which he borrows information, but selects from them according to his needs. The subject matter as written down in the textbooks is usually presented by the authors in systematic or formal fashion, *i.e.* it is put down in accordance with the demands of logical organization and not with reference to the requirements of specific undertakings. As a result, so McMurry complains, much of our school work is quite lacking in effective unity. The various subjects are taught in the form of detached fragments. The work is divided up into daily lessons of approximately equal lengths and these assignments are drilled in by more or less mechanical methods. For the pupil, at any rate, there is no dominating principle of integration. Learning for him is just a routine of daily chores.

Considerations of this sort suggest to McMurry that the chief defect in present-day curricula can be remedied by the simple process of substituting for this systematic or formal organization of subject matter the kind of organization that we find in the applications

[1] McMurry, Charles — *How to Organize the Curriculum;* The Macmillan Company.

of the project method. What is needed is an organization of our educational material into "central teaching units." Since these units are more inclusive than the usual assignments, he refers to this quest for central teaching units as "an expedition after big game." "A flat proposal is now made to reorganize studies around central teaching units. We have a plan to mass attention and effort upon the strategic centers of knowledge, to wage war against ignorance by a bold and resolute attack upon a few strongholds. These few knowledge centers should be expanded till they fill the whole horizon of thought, while a multitude of less important items should dwindle until they disappear from view. We can now afford to drop the pop guns and toy pistols, seize the long-range rifle, and go out for big game."[1]

These central units are called projects or "life projects," because it is claimed that they are enterprises of exactly the same nature as those which we find in everyday life. Some of the undertakings that are listed as projects are clearly in line with the definition previously given of project method. Instances of such projects are: a game with bean bags for the purpose of learning to combine scores, the making of costumes to suit the different actors in a play, the devising of a homemade telephone, the preparation of an aquarium, and the like. Projects of this kind obviously rest on the principle of incidental learning. But when we come to McMurry's "central teaching

[1] *Ibid.*, p. 121.

units" we seem to be dealing with a different type of "project," and here it behooves us to watch our step. As instances of such units McMurry cites the study of such topics as the Louisiana Purchase, Virginia plantation life, the invention and progressive use of the steam engine, the steel production at Pittsburgh, and similar large undertakings. On the surface, at any rate, such studies seem to be more theoretical and academic. But these too are projects, so McMurry maintains, if we see to it that our handling of them has a "wise purposeful organization." The patterns for such organization, he claims, are to be found in practical life. The Pennsylvania Railroad System and the Panama Canal are instances, on a large scale, of wise and purposeful organization. Such organizations, therefore, are useful models for teachers to study. The materials used in the school must, of course, be adapted to the interests and age-levels of the pupils. But the principle or method of organization should be the same throughout, so that there will be no break between the school and the life outside of the school.[1]

The scheme is simple because it leaves out an important difference. The difference is that out-of-school projects are always of a practical kind, whereas McMurry's "projects" may make knowledge an end in itself. Consequently, the analogy with projects or organizations in the life outside of the school provides only for education by the method of incidental learning.

[1] *Ibid.*, chs. ii, iv.

In practical affairs learning is always a means to an end. The analogy accordingly serves well enough for such projects as making costumes for a play, or constructing an aquarium or a homemade telephone, in which knowledge is introduced purely as a means. In such cases the end in view dictates what sort of information must be acquired. But when we come to such projects as Virginia plantation life and the Louisiana Purchase, which are also listed as projects, it is a different story. The pupils do not undertake to run a plantation or to buy Louisiana. The aim is to know something about these topics. But what sort of knowledge is important and what is not? There is no guiding principle at hand. Merely to block out the work into teaching units does not tell us anything. In the case of Virginia plantation life, for example, which is discussed at length, McMurry puts in all sorts of information pertaining to the early land grants, the increase in population, comparisons with modes of life in other colonies, the buildings and kitchen equipments on the plantation, the making of brandy and shoes and clothes, political affairs, and other matters, without any particular system or purpose. It is evident that this knowledge is not demanded by the topic in the same way that specific knowledge is required if a boy is going to build a radio set.

McMurry's doctrine of "central teaching units" furnishes no guiding principle. It does not help us any to be told that a project like the study of Virginia

plantation life and a project like constructing a radio set or a telephone are the same sort of thing. In the first place, they are not the same; and in the second place we do not learn wherein this alleged sameness consists. The principle of organization is not analyzed out. Consequently, the teacher has nothing to go by. Why not study the genealogies of the great Virginia families and their intermarriages, as we have done for so many years in the case of kings? The organization of the curriculum into these teaching units is no guarantee whatever of progress. All the sins of the past can be repeated without restraint under this new system. The notion that our educational evils can be remedied so simply shows a pathetic faith in the efficacy of machinery.

The fundamental difficulty with McMurry's doctrine is that it tries to substitute the manipulation of educational subject matter for an educational program or ideal. The subject matter is to be organized into projects or central teaching units, but the purpose in so doing is not specified. The purpose may be to train research specialists, or to secure some variety of "culture," or to accumulate information, or something else. As the purpose varies so the organization will vary. To say that subject matter must be organized into projects is not to furnish a method any more than to instruct a commanding general to crush the enemy is a plan of campaign. It might as well be claimed that the following comment written by an instructor on a

Freshman's essay constitutes instruction in method: "You should develop a grace of style and a depth of comprehension. You need, too, to understand the aesthetic and spiritual values of the great masterpieces of the world's art, literary and pictorial."

In view of this result it is necessary either to return to the original meaning of the project method, which makes it identical with incidental learning, or to go on to some new meaning. The latter is the alternative adopted by Kilpatrick. The trait or characteristic singled out by Kilpatrick as the essential feature is the purposefulness which normally characterizes undertakings of the sort described. Accordingly, the project method is defined as "wholeheartedly purposeful activity in a social context."[1]

In this definition, it may be noted, the differentiating trait of the project method is sought, not in the organization of what is learned, but in the attitude of the learner toward his work. Wherever activity is wholeheartedly purposeful we have an instance of the project method. It may be questioned whether this definition is really the definition of a method. On this basis the project method in teaching means any procedure that arouses interest and so directs activity. The definition just given lays down no principle of procedure, and still less does it designate a specific device. If wholeheartedly purposeful activity can be called a method,

[1] Kilpatrick, W. H. — *The Project Method* (pamphlet); Teachers College, New York. Cf. also his *Foundations of Method*, ch. xxi.

it is only because the term method is taken in a very "broad sense." Perhaps interest or attitude would be a more suitable name. For example, if a boy feels a fly crawling over his cheek, or if his thoughts wander off to the old swimming hole, then the thing on which he is working ceases, at least for the moment, to be a project. As long as the distraction lasts he is not wholeheartedly purposeful. "If the purpose dies and the teacher still requires the completion of what was begun, then it becomes a task."[1] It must be admitted that this is not the sort of thing that we ordinarily mean by method. What we usually mean is some way of adapting means to ends. Thus our methods of dealing with criminals and with insane people have changed considerably in the course of time, which is to say that we apply a different kind of treatment. There is an old saying to the effect that there are many ways of skinning a cat, *i.e.* there are many methods. But the way it is done is different from the way that we feel about the business while we are doing it.

In a sense this is a minor matter, since it is just a question of names. In the abstract, at any rate, everyone has the right to use a term as he may see fit, provided that he serves notice. There is high authority for the view that names don't matter and that a rose by any other name smells just as sweet. In the present instance, however, there is more at stake. The situation with regard to the project method is already in a

[1] Kilpatrick, W. H. — *Foundations of Method*, p. 348.

sad state of confusion, and a definition of this sort is likely to make things worse. There are occasions when names do matter, Shakespeare to the contrary notwithstanding. As long as we continue to speak of project method, people will think that we mean a method in the sense of a prescribed procedure or specific device, even if we define it differently.

It should be added that the project method as interpreted by Kilpatrick is made to include varieties of experience with which we do not ordinarily associate the idea of purposefulness. The activity may express itself in the intent or purpose to enjoy. In certain situations, "the purpose is to consume, to use in some way, to use and enjoy. A small boy has the opportunity to see fireworks. His purpose makes his eyes follow the rockets high into the air, as he looks eagerly to see the bomb burst. The boy is, as regards production, merely passive; but he is very active in consuming, taking in, enjoying what someone else has produced."[1] This is called a Consumer's Project, as contrasted with the Producer's Project, which is the more usual type of project.

At the present time very few educators would be disposed to question the importance of purposeful activity, although many might question the expediency of calling every instance of such activity a project. The interest and importance attaching to Kilpatrick's conception of the project method does not lie in the

[1] *Ibid.*, p. 347.

emphasis on purposeful activity, but in the bearing of his standpoint on curriculum construction and teaching method. This bearing, however, is not easily determined. In one of its aspects Kilpatrick's position appears to be an uncompromising revolt against tradition. The project method is emphatically not "a device for the 'painless putting across' of prior chosen subject matter."[1] "With young people it is only in slight degree that problems can be assigned. Assigned problems, as a rule, remain teacher's problems; they do not thereby become pupil's problems. Purpose cannot be assigned."[2] "Much if not most of the machinery of school promotions and the like are based on finishing set tasks."[3] We must not begin by setting up "certain traits as items of knowledge or certain habits or skills" as ends to be realized "and then hunt about for some experience that will teach them," but rather "seek first some fruitful experience." Having achieved this, we will next "seek to direct it, if need be, so that the pupils will grow from it and through it — so grow that they will henceforth live a richer life and have more control over the process."[4] In brief, the trend of the doctrine is, so far forth, all in the direction of encouraging the pupil to construct his own curriculum.[5]

[1] *Ibid.*, p. 346. [2] *Ibid.*, p. 349.
[3] *Ibid.*, pp. 351, 352. [4] *Ibid.*, p. 363.
[5] "I have heard it seriously discussed at a meeting of American teachers whether pupils should be compelled to keep time to the music while marching to their places. There were tender souls who

But there is another side to the story. It is not claimed that we must limit ourselves to "child purposes." Undoubtedly "purposeful activity furnishes better learning conditions than coercion"; but it must also be recognized that we cannot "get purposeful activity just by wishing it or by decreeing it."[1] There are certain minimum essentials, such as reading and number work, which are "so useful for future progress in school and life, both immediate and more remote, that we should use compulsion if need be to get them; so important that if they are not got otherwise there would eventually come a time when we should, if need be, drop practically everything else and compel the learning of them."[2] At this point Kilpatrick is quite as uncompromising as any traditionalist in his insistence on "prior chosen subject matter," which must be "put across," whether painlessly or otherwise. There is no shrinking from "assigned problems" or "set tasks." It is hoped, of course, that the big stick can be kept out of sight, but the teacher has explicit authorization to use it if necessary, in order to compensate for the shortcomings of child nature and purposeful activity.

All this is quite confusing. At first sight the doctrine of purposeful activity seems revolutionary in tone. Presently, however, it appears to mean only that

argued that this compulsion might do serious harm by interfering with the self-expression of the youngsters." Adams, Sir John — *The New Teaching*, p. 19.

[1] Kilpatrick, W. H. — *Foundations of Method*, p. 350.

[2] *Ibid.*, pp. 365, 366.

activity should be purposeful as far as it can be made so. This borders on the commonplace. Theoretically at any rate, the great mass of opinion on this subject is in accord with this view. The recognition of minimum essentials, or "prior chosen subject matter," means that Kilpatrick concedes the principle which at first he seemed to challenge. This at once gives elbowroom to the adversary. How extensive is this list of minimum essentials? Kilpatrick says simply that *his* list would be very short. With others the list would no doubt be long. It is antecedently rather likely that the arguments in favor of the subjects on the short list would apply quite as directly to a longer list. For example, we say that reading and number work are minimum essentials; why should not the same claim be made for history and geography? Moreover, the method of teaching would be different. As long as things are running smoothly the minimum essentials present themselves in all sorts of contexts; they are not learned separately. As Kilpatrick says, "we find arithmetic in many little pieces scattered along the path of life. These we shall teach as we need them."[1] But as long as it works out this way there is no need of exercising compulsion. To "drop practically everything else and compel the learning" of the minimum essentials would mean an abandonment of the whole idea of starting with a "fruitful experience" and a reversion to the old method of set tasks and prior chosen subject

[1] *Ibid.*, p. 357.

matter. On casual inspection, at any rate, this looks like an oscillation between two extremes. On the one hand the teacher all but fades out of the picture; on the other hand the teacher functions like a drill sergeant in charge of the awkward squad

The emphasis on initiative and purposive activity frequently suggests a mystic faith in a process of "inner development" which requires nothing from the environment except to be let alone. But as Dewey remarks, thinking requires suggestions and the child must get his suggestions from somewhere other than the recesses of his inner consciousness. "There is no spontaneous germination in the mental life. If he does not get the suggestion from the teacher, he gets it from somebody or something in the home or the street or from what some more vigorous fellow-pupil is doing. However, the chances are great of its being a passing and superficial suggestion, without much depth and range — in other words, not specially conducive to the developing of freedom." And, as he adds, "the implication that the teacher is the one and only person who has no 'individuality' or 'freedom' to 'express' would be funny if it were not often so sad in its outworkings."[1] It seems to be taken for granted that if the teacher makes suggestions there is nothing left for the pupil to do but to remember what he has been told. But this is an absurdity. The dread of assignments

[1] Dewey, J. — *The Journal of the Barnes Foundation*, January, 1926, p. 5.

and set tasks is historically explainable, but it must not obscure the fact that education means guidance and direction, which it is the function of the teacher to supply.

There is no intention in the foregoing discussion to minimize the importance of purposeful activity. The point is rather that the whole idea of the project method easily becomes a means of evading instead of facing the problem of educational guidance or direction. The teacher must have a reasonably definite plan of campaign; he must foresee certain results that are to be attained. In the application of the project method to the teaching of agriculture the ends to be attained are entirely definite. The only comment to be made is that these ends are too limited to include our whole educational program. The conception of the project method as organization into "central teaching units" leaves the teacher entirely at sea. Similarly the identification of the project method with purposeful activity leaves the whole matter of "prior chosen subject matter" in a state of obscurity. With regard to logical organization, for example, we can hardly rest content with the statement: "As pupils get mentally older they will wish to bring together what they know in ordered form. I should naturally expect this tendency and encourage it."[1] The *leaning* of Kilpatrick's position is clearly toward letting the pupil determine his own curriculum. In the case of mathematics, "some of the pupils, particularly the more

[1] *Ibid.*, p. 360.

mathematically inclined, will, from time to time, put the pieces together and form wholes more or less complete. Later some will specialize in the subject."[1] Apparently those who do not do so are to be let alone. This is not carrying out a constructive educational program, but a harking back to Rousseau.

As was said at the outset, the purpose of the project method is to prevent the work of the school from becoming perfunctory, mechanical, meaningless. The things learned in school must operate to change the pupil's everyday experience, his scale of values, his outlook on life; they must furnish incentives for the process of reinterpretation which we call thinking. The question is simply how this result can be secured most effectively. The movement known as the project method has served a useful purpose in stressing the importance of independent and meaningful activity. But it has also introduced a new confusion and a new attempt to solve educational problems by means of a magic formula. In the interests of our common undertaking it would be better to limit the term project to its original meaning of incidental learning, or else to abstain for a time from talk about the project method and devote ourselves wholeheartedly to a consideration of educational aims, for the purpose of reorganizing our educational materials and methods so as to create new incentives and new meanings for the work of the school.

[1] *Ibid.*, p. 357.

Questions and Exercises

1. State the conditions that must be met by a good project (in the sense of incidental learning). Give an illustration.

2. What would you say to the suggestion that the "project method" is just a name for the psychologizing of subject matter?

3. If we define a project as "a problematic act carried to completion in its natural setting," what would you regard as the meaning of "natural setting" and how does this meaning give distinctiveness to the method?

4. If we grant that some teaching units are more "natural" than others, what is the meaning of natural? What is the objection to the suggestion that all teaching units should be "life projects"?

5. If it is true that "purpose cannot be assigned," does it follow that in all worth-while activity the initiative must come from the pupil?

6. Formulate the objections that have been urged in the text against using the project method as a name for "wholeheartedly purposeful activity in a social context." What is the meaning of the word "social" in this connection?

7. What would you say to the suggestion that, since learning without purposefulness is, in the main, a waste of time, there should be no compulsory work of any kind in the schools?

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PART III

THE NEW PSYCHOLOGY OF LEARNING

CHAPTER VIII

SCIENTIFIC METHOD AND THE NEW PSYCHOLOGY

It has sometimes been said that man subordinates himself to nature in order to control nature. First the scientist, by the expenditure of endless patience and ingenuity, discovers the laws of nature, and then the practical man arranges things in such a way that nature does our work for us in accordance with its own laws. Railways transport us and our belongings from place to place, cables carry our messages, and adding machines look after our bookkeeping. We have learned how to make two blades of grass grow where only one grew before, or even where none grew at all; and we have made ourselves at home on the globe from the arctic regions to the equator. Civilization has advanced, not solely by the adaptation of man to his material environment, but by the reconstruction of the environment in accordance with human needs and desires. As John Fiske pointed out many years ago, man, instead of adapting himself to his environment, makes the environment adapt itself to him.[1]

If we turn our attention to the social environment, we find that it tells much the same story. The social

[1] Fiske, John — *The Destiny of Man*; Houghton Mifflin Company.

organization has been in process of remaking through the centuries, in order to secure for everybody a larger measure of safety, justice, opportunity, and similar goods, which the Declaration of Independence refers to collectively as "life, liberty, and the pursuit of happiness." We have come a long way since the ancient autocracies and tyrannies and injustices. It is an inspiring story, yet the achievements in this field do not present so brilliant a record as the conquest of the material environment. The obstacles to social reform have been much greater than the obstacles to progress in the physical sciences. The conflict with tradition, bigotry, and vested interests has been more direct and bitter. As a consequence, progress has been less dependent on the triumph of insight and evidence, as in the case of scientific discoveries, and more dependent on trials of brute strength and diplomatic compromise.

Viewed from this standpoint, the purpose of a democratic program of education is primarily to secure the liberation of intelligence for the improvement of human life. This program requires, first, a social program which clarifies the meaning of democracy, and secondly an organization of educational materials and methods so as to make this program effective. But all this is bound up intimately with our conception of the nature of intelligence. If therefore the liberation of intelligence is our aim, we have much at stake in what psychology may have to say concerning this subject.

Modern psychology presents a conspicuous record of development. The changes in this field have been revolutionary. But in this world of opposites there is no such thing as unalloyed progress. Every advance breeds its own enemies. As was shown earlier, the enthusiasm for scientific method has tended to create an attitude of mind that is hostile to the democratic ideal. This situation, we now find, is repeated in the field of psychology. Here too the enthusiasm for scientific method encourages a lopsided attitude, which is less concerned with the liberation of intelligence than with its abolition. In the abstract all science is, indeed, the embodiment of the democratic spirit, since it means, first of all, the cultivation of methods that will safeguard the free working of intelligence. But in actual practice democracy, like politicians running for office, has frequent occasion for prayers to be delivered from its friends.

Let us glance for a moment at a few of the high spots in the history of educational psychology. The time was when the doctrine of faculties had the endorsement of psychology. As a result of this doctrine it was commonly supposed that the free working of intelligence presented no problem. All that education needed to do was to develop the various faculties by exercising them on certain restricted subject matter. Once developed, these faculties would then transfer their "powers" freely to all sorts of situations and problems. But if there is no such automatic transfer of

training, as is more commonly held, then the result of such narrow education would naturally be to intensify class distinctions. The traditional ideal of liberal education had the effect of developing an attitude that had no sympathetic understanding of the things which were of fundamental concern to the everyday life of the common people. In other words, psychology gave its sanction to an educational doctrine that added new difficulties to the realization of democratic aims.

With the next development of psychology this situation was repeated. The whole doctrine of a "mind" operating through its "faculties" had come under suspicion. To say, for example, that we remember a thing because we have a faculty of memory is a process, not of explanation, but of naming. It does not tell us why we remember one thing better than another, or how things previously learned are brought back to mind. Consequently, educational theory and practice shifted away from the dogma of faculties. It was then taught that education had to do with the organizing or regimenting of "ideas" or "mental states." The curriculum was enriched and teaching method was made prominent. But education became preoccupied with the handling of these hypothetical "ideas" or "mental states," to the detriment of problem-solving and the cultivation of individual initiative. Teaching became too much a matter of marshaling ideas, as though they were soldiers on parade. The teacher rather than the pupil occupied

the center of the stage. Formal methodology, as exemplified in the famous Five Steps of the Herbartian method, was cultivated to an extent which made it a means of suppressing intellectual interest, and thus of making social progress more difficult. Here again psychology incurred a large measure of responsibility for sending education off on the wrong track.

The latest development grew out of a dissatisfaction with these "ideas" or "mental states." If we do not need a "mind" or "faculties" to explain the facts of experience, can we not say the same thing with regard to those "ideas" of the Herbartians? At the present time if a psychologist wants to know the conditions that determine a process of reasoning or remembering or perceiving, he is not likely to trouble himself much with questions either about the operations of the "mind" or its "faculties," or about the operations of "ideas." He thinks it is much more to the point to find out what is going on in the nervous system. At first the nervous system was just a convenient tool for the "mind." Then it was found that many things which were formerly ascribed to the mind could be explained quite well in terms of neural processes. This development has gone on until it has become doubtful whether there is any need of a "mind" or "mental states" at all.

This shift of emphasis does not mean necessarily that there is no room for mind in any sense of the term. But if mind is to have a place, it must take on a new

meaning. The older meanings of "mind" and "mental states" are being discarded because they designate some sort of entity or substance. From the standpoint of this newer movement in psychology mind may be regarded as either a name for a function, for a distinctive type of behavior, or else as merely "the shadow of an outworn creed." But in either case the psychologist of to-day takes his point of departure from such facts as instinct, impulse, habit formation and adaptation generally; his psychology is predominantly a psychology based on the fundamental category of stimulus and response. His chief interest is in man as an animal that adapts itself in various ways to its environment. This change in standpoint is of profound significance for educational theory and practice. It gives promise of showing in detail how man's supreme gift of intelligence really operates in securing better adaptation, so that this knowledge may be used educationally for the purpose of making intelligence a more effective agency for human progress, as measured by the democratic ideal.

In its negative aspect, then, the modern development of psychology is a reaction against the older view which held that psychology was the science of a substance or entity called "mind" or "soul." But this reaction is in danger of going to extremes. The psychological doctrine that goes by the name of behaviorism maintains that "the complete explanation of human behavior does not require a 'unique psychic' factor any more than does geology. . . . Behaviorism claims

to render a *more* complete and a *more* scientific account of human achievement *without* the conception of consciousness, than traditional psychology is able to render with it. The factors which traditional psychology vaguely classifies as conscious or mental elements merely *vanish* without a remainder into the biological and social components of the behavioristic analysis."[1] In a word, human behavior is "a form of motion differing only in complexity from the motions and dynamics of physics."[2]

These quotations suggest that the hope of a psychology which will be more serviceable to education than the earlier types is likely to meet with disappointments. Instead of furnishing an account of intelligence as a distinctive trait in human behavior, this behavioristic psychology merely undertakes to make intelligence itself "vanish without a remainder." Psychology on these terms is a description of the native and acquired forms of human behavior, the acquired forms being explained in terms of new connections set up in the nervous system as a result of previous behavior and reducible ultimately to the category of mechanical habit. That is, the educational psychology which emerges from this position is a psychology which makes the formation of mechanical habits the all-in-all of educational practice.

[1] Weiss, A. P. — *A Theoretical Basis of Human Behavior*, Preface, p. vii; R. G. Adams and Company.

[2] *Ibid.*, p. 47.

Generally speaking, the avowed behaviorists in psychology have not as yet concerned themselves greatly with the application of their doctrine to educational questions. Up to the present time they have been too busy with the purely theoretical implications of their position. The spirit of behavioristic psychology, however, has found its way into educational doctrine, notably in the work of Thorndike, which has done so much to change the character of educational psychology. It should be stated unequivocally that Thorndike has not allied himself with the behaviorists and that he frequently uses language which would be unbecoming in a true, dyed-in-the-wool behaviorist. Nevertheless, Thorndike's psychological doctrine converges on habit formation in a way that shows unmistakably his behavioristic leanings.

These leanings are exhibited most strikingly when we examine Thorndike's discussion of "Learning by Analysis and Selection."[1] The discussion is introduced with the statement that "all learning is *analytic*" (p. 153) and is an elaboration of the doctrine that "learning by inference is not opposed to, or independent of, the laws of habit, but really is their necessary result under the conditions imposed by man's nature and training. A closer examination of selective thinking will show that no principles beyond the laws of readiness, exercise, and effect are needed to explain it; that it is

[1] Thorndike, E. L. — *Educational Psychology* (Briefer Course), ch. xii; Teachers College, New York.

only an extreme case of what goes on in associative learning as described under the 'piecemeal' activity of situations; and that attributing certain features of learning to mysterious faculties of abstraction or reasoning gives no real help toward understanding or controlling them."[1]

Let us suppose that a person is forming the arithmetical concept of "five" for the first time. According to Thorndike the process may be explained in some such manner as this: The learner is presented, let us say, with a number of situations, each of which contains the element of "fiveness." That is, the learner is brought into relation with such situations as "five boys," "five books," "five pencils," "five taps on the desk." At first the response of the learner is a "gross total response," in which the response for "five" is contained, but in a submerged sort of way. The response for "five" is just an element in the total response; the element is present, indeed, but is not present in the way that we mean when we say that we know what "fiveness" is. What we have, so far, is an objective situation, (*e.g.* five pencils), on the one hand, and a gross total response containing a response element which we may call "response to fiveness," on the other. The process of learning "fiveness" is a process in which we disengage a response-element (response to fiveness) and attach it to some situation-element (the objective fiveness). "The forces of use,

[1] *Ibid.*, p. 158.

disuse, satisfaction, and discomfort are so maneuvered that an element which never exists by itself in nature can influence man almost as if it did so exist, bonds being formed with it that act almost or quite irrespective of the gross total situation in which it inheres."[1]

The point is fundamental, so it is permissible to restate it in simpler form. According to Thorndike, the youngster in learning the meaning of "fiveness" starts with a complex reaction, "a gross total response." He responds to the colors of the objects, to their sizes and shapes, their location and distance, and to many other things besides, including the "fiveness." In everyday language he knows all about them from the outset, the only difficulty being that these responses are all mixed up. The various elements in the gross total response need to be sorted out. In order to know the meaning of "five" it is necessary to isolate this reaction-element so that it will take place by itself or at least in relative independence. This is achieved by having the pupil respond to a number of different instances of five. Since all these instances are alike in that they all present the element of "fiveness," the connection between the quality or trait of fiveness that the group of objects possesses and the reaction to this trait of fiveness is strengthened by the repetitions. At the same time that this takes place, the other elements in the situation are weakened. If the pupil

[1] *Ibid.*, p. 161.

responds first to five blocks and then to five marbles, the element "five" is constant, but the element of shape changes. In the case of "five taps on the table" shape is absent altogether. If we keep this up, then eventually the "five" will become detached from all the other elements, on the principle of what William James calls "dissociation by varying concomitants."[1] This is what is meant by learning the meaning of "five."

This explains why Thorndike asserts that learning is just a case of analysis and habit formation. The final reaction is really present from the start. Learning consists in developing the original response-element in such a way that this response will operate all by itself. We single it out, which is analysis, and we develop the bonds between the response-element and the situation-element, which is habit formation. That is all there is to it. The connection between the objective fact or quality, such as "fiveness," and the response to this quality is already present; to learn means that this connection is "emphasized as far as may be" (p. 159). Teaching methods are methods by which the situation-element and the response-element become knit together so as to function in comparative independence. These new responses are known as habits. A habit is a reflex response that has been acquired as a result of previous activity. It is an acquired reflex.

[1] James, W. — *Principles of Psychology*, Vol. I, p. 506; Henry Holt and Company.

Our concern at present, however, is not with the method or methods by which this functional independence is achieved, but with the "set-up" with which we are supposed to start. Thorndike's account has a certain engaging simplicity. The "fiveness" is an objective fact, although it is a fact "which never exists by itself in nature." All we need to do is to assume further a corresponding response-element in the "gross total response," and we are ready to begin. But if we pause to scrutinize the assumptions already made, we are likely to find that we have been inveigled into implications of a dubious kind. It seems natural and innocent enough to assume that the trait of "fiveness" is just out there, waiting for some observer to take notice of it. But this assumption becomes less plausible when we begin to see its implications. Each pencil has two ends, so if "fiveness" is out there, then "tenness" must be there too. One pencil is one-fifth or twenty per cent of the total number; this is just as much an objective fact as the fiveness with which we started. By the same token, therefore, every infant who looks at a group of five pencils, has a "one-fifth" reaction, or a "twenty per cent" reaction, or, more likely, has both reactions. This is beginning to look fishy, and it gets worse as we proceed. We must make provision next for a forty per cent and a sixty per cent and an eighty per cent reaction; in fact everything that the most accomplished mathematician can discover about the properties of fiveness is already present in

the mind of the infant — if he only knew it. This is Wordsworth brought down to date:

> Not in entire forgetfulness,
> And not in utter nakedness,
> But trailing clouds of glory do we come
> From God, who is our home.

It is apparent that we have got off on the wrong foot. The trouble lies in the initial assumption that the fiveness is presented from the outset as a "situation-element" waiting to be picked up. It is not something to be picked up, but something to be built up. In order to know the meaning of "five" we must construct the number series in which five has a place. To know five we must place it between four and six; five is one more than four and one less than six; it is the sum of two and three, etc. In short, the idea of five involves putting in all sorts of relations. The idea of five is not a fixed thing at all; it can take on more and more meaning, and in the case of the expert mathematician it may become an endlessly complicated affair. We may concede that "all learning is analytic," as Thorndike claims, provided it is also acknowledged that all learning is synthetic or constructive. The attempt to explain learning exclusively in terms of analysis means an artificial simplification of the facts and results in misdirected educational endeavor.

Perhaps this discussion is a serious misrepresentation of Thorndike's meaning. But even so it serves the purpose of showing that in a sense it is simpler and

also more in keeping with the verifiable facts to say that in learning the meaning of "fiveness" we develop a new form of response. If we cannot put in at the start all the responses that are ever developed in the end, we are obliged to make provision at some point for new forms of response, and so we might as well begin that way. The point is that the development of new responses is not just a matter of analysis and habit formation. Our task in teaching is not the emphasizing and isolating of connections which are already present, but the construction of something that is new. It is not just a matter of analysis, but of synthesis as well. The existence of such response-elements as Thorndike assumes is not in any sense a verifiable fact but a hypothesis which is made for the purpose of showing that all learning can be reduced to analysis and habit formation. Similarly there are no such "situation-elements" as fiveness, all complete and waiting to be noticed. To assume such elements is to eliminate the process of thinking from the outset.

It is true, of course, that variations in the sizes of groups involve corresponding variations in our "gross total responses." The response to a group of five objects is likely to be different from the response to a group of four, and is almost certainly different from the response to two or to one. Psychologists have told us that shepherds are sometimes able to tell when a sheep is missing from the flock, without counting all

the sheep in the flock and without being aware that one particular sheep is missing. The flock as a whole does not "look right"; there is a peculiar "feel" about the experience which warns the shepherd that one of his charges is absent. The gross total response has undergone a change. It is possible to detect such a change even without the ability to count the whole group. The nature of this change is precisely what is in question. Thorndike's position *seems* to imply that there is a sort of subconscious counting going on which needs only to be made explicit. The various "one-nesses" which collectively constitute the group "already have" certain bonds, which later on automatically constitute counting, if these bonds are "emphasized as far as may be." It is neither necessary nor reasonable to assume anything of the kind. The assumption is made solely for the purpose of simplifying things in the interest of scientific technique. We are asked to surrender the hope of insight into the nature of mind as a sacrifice on the altar of scientific method.

The practical bearing of the foregoing discussion on educational practice is easily pointed out. The logic of Thorndike's doctrine is all in the direction of mechanical habit formation as the central meaning of education. There is no adequate exposition of "synthesis" or "construction," or, in more common language, of how thinking goes on. As against this position it must be insisted that habit formation in

Thorndike's sense[1] is relatively unimportant, and that the cultivation of thinking as a creative process or as the reconstruction of old habits is of fundamental importance. A psychology which reduces all thinking to habit encourages teachers to put all the emphasis on the kind of readiness which springs from rote learning. In terms of curriculum making it emphasizes the selection and organization of material for the purpose of mechanical habit formation, to the neglect of selection and organization designed to promote thinking. Such a psychology is not an ally of democracy, but an enemy.

This predilection for the category of habit in the explanation of human conduct is due apparently to the idea that this is the only alternative to explanation by means of "mysterious faculties of abstraction or reasoning." The old faculty psychology, as likewise the Herbartian psychology of "ideas" or mental states, had its origin in an antiquated metaphysics. On the other hand habit is an indubitable fact of experience. So the temptation naturally presents itself to fight shy of everything that cannot be handled by some form of scientific technique. This sort of prejudice, which excludes from consideration every sort of problem except those which lend themselves to manipulation by special scientific methods, forms a fairly

[1] In his book on *Human Nature and Conduct*, John Dewey gives a different interpretation of habit, which makes habit an essential element in thinking and not simply the ability to do things in the absence of thinking.

exact parallel to the prejudice which insists on making every problem of curriculum construction a problem of scientific technique. An attitude of this sort is not only unwarranted but futile, since it cannot be maintained the whole way. In the case of "scientific curriculum construction" the high pretensions of scientific method are obliged to yield in favor of questionnaires; in the present case we are left with quasi-metaphysical speculations regarding "situation-elements" and "response-elements." Meanwhile the things that are really important in education slip from our grasp.

As was suggested previously, Thorndike shares with behaviorism the disposition to reduce all changes in behavior to mechanical habit. In the case of behaviorism there seems to be no other alternative. If all human behavior can be explained in terms of physics, every form of activity, so it would seem, must come under the heading of original behavior or else it must be regarded as a variation due to habit. There is no room in the scheme of things for intelligence as a distinctive form of behavior. This position has the merit of simplicity. It is a merit that cannot be claimed for Thorndike's doctrine. While Thorndike's explanation of behavior likewise takes everything back to habit, it is less startling and less parodoxical than behavioristic doctrine, because Thorndike makes considerable use of the language of common sense. His language constantly suggests that "mind" in some

sense is a factor in behavior, as distinct from purely physical agencies. Whether this is really the intention, I am unable to make out.

A case in point is his familiar doctrine of "satisfiers" and "annoyers." Thorndike makes much of the influence exerted by satisfactions and discomforts. Thus we are told that all acquired responses are "due to the action of use, disuse, satisfaction, and discomfort";[1] that an animal runs from a tiger "because running in that situation is a satisfier to his neurones" (p. 60); that all learning involves "the selection of connections by use and satisfaction and their elimination by disuse and annoyance" (p. 139). This *sounds* as though something "mental," in the form of satisfaction and annoyance, influences conduct, over and above, or in addition to, the physical causes that are operative at the same time. The satisfactions and annoyances *select* connections for perpetuation or elimination; the resulting behavior is due to their *action*.

Unfortunately this language is not free from ambiguity. In the discussion of the "Law of Effect" it is explained that, if a response is satisfying, the connection between stimulus and response is strengthened; if it results in annoyance the connection is weakened (p. 71). This is open to two interpretations. One is the common-sense view that when a stimulus operates a second time the memory of a previous satisfaction or annoyance is present in the form of an "idea," and

[1] *Ibid.*, p. 149.

that this idea influences the resulting action. The other interpretation is that the satisfaction or annoyance is simply a sign, like rash on a person coming down with the measles. The sign is a convenient way of finding out what is going on, but it is not an agent in determining the course of events.

The issue here raised is the question of the place of foresight or intelligence in human behavior. The doctrine of satisfiers and annoyers does not prove that Thorndike gives a place to intelligence. The satisfiers and annoyers *may* "operate" without any reference to foresight at all. "The animal does not originally run from a tiger because he intends to get away. He runs because of the tiger and because running in that situation is a satisfier to his neurones" (p. 60). In other words, the visual stimulus which we call "seeing the tiger" sets up the reflex responses of running, and this happens to suit these responses, as is shown by the "satisfaction," and so the animal keeps on going. This is what happens *originally*, *i.e.* in the absence of previous experience. Let us suppose that the animal accumulates experience in the form of being clawed by the tiger. How is the behavior of the animal to be explained at the second meeting? Does foresight or intelligence take a hand, and if so in what way? As far as I can ascertain, Thorndike is never seriously concerned with the difference in the two situations, but is much concerned to show the likeness between the two. It is all a matter of "readiness,

exercise, and effect," or of "use, disuse, satisfaction, and discomfort." The animal behaves differently on the second occasion, but the difference is ultimately just a difference in complexity of response.

Psychology, like education generally, has suffered in the past from an overdose of speculation, which is probably the reason for our present one-sided emphasis on scientific technique. Behaviorism marks a return from this extreme in that it tries to give a clear-cut, philosophic theory of mind. Many psychologists, however, prefer to pass by the question of the nature of mind and of the relation between mind and body altogether and to occupy themselves with other problems. They undoubtedly have a right to do so. But they do not have this right if they undertake to give a psychological theory of how learning takes place, as a basis for educational practice. As was pointed out at the beginning of this chapter, education is, or should be, concerned, first of all, with the free operation of intelligence. It has a right to protest when intelligence is dropped out of the picture, just because it simplifies matters to do so. There is all the more reason for protest when intelligence is eliminated, without due notice being given of what is going on.

This is not the place to argue the question whether it is possible to give an adequate explanation of human behavior without giving recognition to intelligence as a distinctive mode of behavior. There are, I believe, insuperable difficulties in the way of a program which

undertakes to explain all behavior in terms of physics. But it seems reasonably clear that a democratic system of education has nothing to look for from a psychology that explains intelligence by explaining it away. Such a psychology may make many valuable contributions to our knowledge, but if it is made the basis of our practice, it is bound to become an ally of the forces that are opposed to "progress and reform."

The foregoing discussion indicates that this is another place where the roads lead out beyond science into the realm of philosophical theory. We need an adequate theory of "mind" or intelligence. As Thorndike intimates, we cannot go back to old theories for the explanation of behavior, which happens when we say that "'the will,' 'the voluntary attention,' 'the consciousness of the problem,' and other such entities are endowed with magic power to decide what is the 'right' or useful bond and to kill off the others" (p. 171). Explanation in terms of psychical entities won't do. But explanations which get rid of intelligence altogether are equally lazy and probably quite as pernicious. An adequate theory of education requires both an adequate social program and an adequate conception of the "mind" or "intelligence" with which the teacher has to deal.

Questions and Exercises

1. Indicate briefly the development of psychology from "faculty psychology" to "behaviorism." What is meant by behaviorism, according to the quotations in the text?

2. Point out the assumptions contained in the dictum "all learning is analytic," with regard to the nature of the situation to which a response is made and with regard to the nature of the response. Illustrate.

3. Show by an example that thinking is a process which involves synthesis or construction as well as analysis.

4. Summarize the criticism in the text of the doctrine of "satisfiers" and "annoyers."

5. Consider the following statement: "Until Grade V attention may best be given almost exclusively to obtaining the right answer. Only rarely should the pupil be directed to state what he intends to do before doing it, or why he did a certain thing, after doing it" (E. L. Thorndike, *New Methods in Arithmetic*, p. 138).

6. What would you say to the suggestion that there is a significant analogy between job analysis, as applied in the industries, and the treatment of learning as a purely analytic process?

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CHAPTER IX

HABIT AND THINKING

In the discussions of the preceding chapters it was pointed out that an educational program involves both a social ideal and a conception of mind or intelligence. It is evident that these two are interdependent. If, for example, we start with the assumption that education consists in the training of faculties, or in the reduction of thinking to habit formation, it does not matter particularly what kind of general social ideal is set up. The work of the classroom in that case necessarily gravitates toward drill of some kind in a particular body of subject matter and bears no appreciable relation to general social objectives. The latter are just window-dressing, except in so far as the teacher is better than his psychological theory.

In order to secure a notion of intelligence that is adequate for educational purposes it is necessary to get rid of assumptions that have come down to us from the past. At the outset mind was sharply contrasted with body. It was an entity or substance which acted more or less independently and which controlled the body for certain purposes whenever it saw fit to do so. The body, on the other hand, was a physical mechanism that operated on its own account, except when it was

interfered with by the mind. But the mind was capable, not only of changing the operations of the body, but of changing the machinery of the body as well, so that the body would behave differently on subsequent occasions, even without the guidance of the mind. Such changes in the machinery of the body are called habit formation. Activities like dressing, shaving, and writing, for example, have to be learned with painstaking care. But after they have been learned they practically take care of themselves. It is necessary only to start them going; after they are once under way they continue of their own momentum. The explanation is that connections have been set up in the nervous system which make the various movements unroll in proper sequence as a result of purely mechanical conditions.

On this basis the sole function of habit was apparently to act as a substitute for the mind. Habit represents fixity, regularity, and so it can take over all those activities which follow a set pattern every time they are performed. On the other hand the mind represents flexibility, spontaneity, freedom, which means that the mind begins to function at the point where habit leaves off. Habit and mind divide the realm of acquired behavior between them, and the two cannot overlap.

As was suggested on a former occasion, this conception of mind gradually lost its hold. This was inevitable because such a mind does not fit into a

scientific psychology very well. It involves all sorts of formidable problems, such as the relation of mind and body, the conservation of energy, and the relation of the mind to experienced objects — problems that have resulted in no end of speculation and discussion without reaching any final solutions. Moreover, this doctrine of mind has no real value for explanation. (Cf. p. 174.) To explain a thing by saying that it was due to the action of the mind is, to a psychologist, like saying that the fairies did it. He wants to know the causal sequence in detail, and for this reason he has come to rely for insight more and more on the brain and the nervous system generally, instead of the mind. The explanation of all intelligent behavior in terms of habit is simply this tendency carried to its final conclusion.

The rigid separation between mind and habit, in short, prepared the way for the surrender of the belief in mind altogether. It also had the effect of encouraging a one-sided notion of habit, in that it distracted attention from the flexibility of habits. We have commonly thought of habits after the analogy of reflexes, which, as a rule, operate in a fixed, unvarying way. As a matter of fact, habits in human beings rarely attain such fixity. Habits do not function in isolation, but in a context of other activities to which they must somehow become adjusted. A person walking along the street, for example, is at the same time looking about and thinking idly or seriously about various things.

To put it differently, we have become accustomed to think of the body in this connection as though it were inanimate and inert, rather than a living and dynamic thing. Habit has been compared with a crease in a sheet of paper. If paper has once been creased it will always tend to fold in the same place. But this tendency shows itself only when the paper is handled by someone. The paper does not try to fold itself when it is let alone. On the other hand the habits of a living body do try to express themselves apart from an external stimulus. This is quite obviously the case with such habits as drinking and smoking. A person who has formed those habits gets restless when there is no opportunity to indulge in them. But this applies to other habits also. A business man who has retired or who is away on a long vacation is often like a toper who is shut off from drink. He misses the office, the morning mail, the obligation to keep appointments, to watch the market, etc. The same man, if he had lived the life of a clergyman or of an army officer, would have formed a very different set of habits, but he would have been equally dependent on them. Habits are the forms or channels through which the inborn impulses or "drives" of the body find expression.

It is worth while to keep in mind this difference between the activity of a living body and the behavior of a sheet of paper because it gives us a different perspective on habit formation. An infant does not have many fixed channels of expression as compared with the

adult, and so works off much of its surplus energy in random movements. The growing boy may have a special aptitude or urge for music, which shows itself in his attempts to sing or whistle or to imitate birds or to make sounds by means of crude mechanical devices such as boys use. If someone teaches this boy the elements of the science of music, this urge or impulse is at once turned into this channel. He soon forms the habit of expressing himself in these terms, because he finds here a richer expression for his natural bent. He does not simply sing or play the scales endlessly, but uses these to find new forms of expression. The impulse or urge is a bigger thing than any single expression of it.

All this finds a close parallel in the activities of the business man whom we have just used as an illustration. He too has tendencies or impulses that crave expression. If he were not trained for any particular occupation, much of this energy would waste itself on incidental things such as playing chess or mowing the lawn or perhaps writing verse. He is lucky if it is nothing worse than this, for the devil, as the saying is, finds occupation for idle hands. The advantage of a steady occupation is, as a rule, that it furnishes a much more satisfying opportunity for expression than these random occupations. The business man secures in his business an opportunity to make money, to win the respect of the community, to exercise his creative talent in business enterprises, to have authority over his subordinates,

to lend a helping hand to others, to have influence in civic affairs. All sorts of cravings or desires converge on one point; and eventually he may have scarcely any other way of expressing himself than through his business activities. Away from his business he is like a fish out of water. The point is that the habit of going through the morning mail or of getting informed on the condition of the market has a great deal standing back of it. We don't get much insight into the significance of these habits if we think of them as "response-elements" linked up with "situation-elements." Going through the mail, taken by itself, is as trivial and unsatisfying as scratching one's ear. It requires a background of affairs, which makes this particular activity a gateway for a larger expression of personality. The formation of this habit is at the same time a process of building up a whole "business complex." That is, it is just as much a matter of synthesis as of analysis. Moreover, the total response is more or less new with each morning's mail. This must be taken into account if we are to get an understanding of how habits function in human behavior. But this building up of a new "total response," or something like it, is what we ordinarily call intelligence.

It is a commonplace in biology that many lower animals come into the world with an equipment of inborn and unchangeable forms of response. The stock illustrations are the moth which keeps flying at the lighted candle, and the fish which learns nothing

from being caught on the hook. Man has exceptional capacity for varying his modes of response. He forms habits which become a means for dealing with the environment and for giving expression to his impulses. These habits are the outcome of previous experience; they are acquired traits. They normally have a certain flexibility. We designate, for example, as habits such traits as grouchiness, friendliness, courtesy, neatness, and the like. But they are not absolutely rigid. Friendliness, courtesy, neatness, etc., however ingrained they may be as a result of previous practice, require a certain measure of adaptation to the particular situation. If friendliness or grouchiness were to become absolutely fixed and mechanical forms of response, like digestion, they would cease to be what they are. An organism that reacts in this fashion has no more friendliness than a shotgun or a spring shower.

This adaptation of a habit to a specific situation requires some sort of "sizing up" of the situation. Being friendly requires a kind word on one occasion, a helping hand on another occasion, and perhaps only a smile or a word of greeting at some other time. In proportion as conduct is directed by the meanings of things we say that it is intelligent. As our store of meanings increases, our habitual reactions are changed. Friendliness in a child is very different from friendliness in a man with wide experience of human nature. When the discovery of meanings calls for a special procedure of reflection and inquiry, it is called thinking.

We think because our former habits of response are inadequate, and the results of thinking show themselves in the modification of our habits. Thinking may be defined as a process of finding and testing meanings. In terms of bodily reaction, it is a process of reorganizing habits.

From this point of view the central thing in education is the building up of these "complexes" which go by the name of habits. There is nothing wrong with the emphasis on habits unless we overlook the fact that they are complexes. Education is sometimes called a process of "growth," or a means of giving opportunity for self-expression. We get neither growth nor self-expression (which mean the same thing) from random activities. To secure significant development it is necessary to make the activity that is being carried on an outlet for a variety of interests or tendencies. We may call this the building up of a new complex or a reinterpretation of the activity so as to give it new meanings. This is only another way of saying that habit formation and thinking are not contrasting processes, as traditional psychology taught us to believe, but that thinking is a process of remaking old habits and forming new ones. In other words, thinking cannot be resolved into a collection of "response-elements," each of which is tied up with its appropriate "situation-element," but is a process of building up new total responses, which calls for its own peculiar procedure or technique.

The connection between thinking and habit formation becomes clearer if we accustom ourselves to the notion that meanings or concepts are, first of all, "total responses" or "complexes" or "systems of response" such as we have just discussed. We build up systems of response for groups or classes of objects which include so many diversities that no single trait is necessarily common to all the members of the group. We readily recognize dogs, for example, in spite of the fact that there seems to be no common trait or quality which is common to all dogs and which marks them off from other animals. A dog may be large or small, white or black, hairy or hairless, noisy or mute, fierce or gentle, and so on; it may be provided with the proper number of eyes, ears, and legs, or owing to the exigencies of canine life, there may be deficiencies in these respects; yet throughout all this diversity dogs are somehow still dogs. Just what is meant by dog we may be — and usually are — quite unable to say with any approximation to scientific accuracy; yet in spite of our woeful inability to define, we know quite well what dogs are like, in the sense that we can adopt an appropriate attitude of expectation or preparedness. This attitude is different from every other attitude and comprises a number of alternative responses, so that we know what to look out for and what is worth trying, in case we are obliged to do business with a dog. This is about what we mean when we say that we have a concept of an object. The result is that, instead of

rigid predetermination, we have alternative courses of procedure. The concept represents a wide range of possible behavior in condensed and concentrated form. In epitomizing a wide variety of experience it becomes both a record of the past and a guide for the future. To the extent that the concept is rich in content, the new situation calls forth a variety of suggestions or expedients, and so opens the way for adaptive behavior as contrasted with the fixed responses of purely mechanical habits or reflexes.

At this point our discussion of thinking trenches on the problem of the transfer of training. From our present standpoint this problem centers on the development of concepts. Mechanical habits, *i.e.* responses cultivated in isolation, do not seem to facilitate transfer, but may even provide obstacles to transfer. If the habits of an automobile driver are once thoroughly mechanized, the change to a different type of gear-shift is likely to be attended with some difficulty. But when our habits interpenetrate and form systems of response, which on higher levels grow into concepts, we get the flexibility and adaptability that we have in mind when we speak of transfer of training. This is simply to say that transfer takes place through meanings, or that transfer of training is just another name for intelligence.

The moral of all this is that if we devote ourselves to the proper development of concepts, transfer of training will cease from troubling. We have had a

problem of transfer because we have failed to develop concepts so as to give them proper usefulness outside of the classroom. The fact that the problem of transfer is, in the first instance, a "school problem" raises the suspicion that we have this problem on our hands because of the cleavage between the school and the life outside of the school. In the world of everyday affairs we do not seem to be troubled so much by the problem of transfer. But a school subject which, in Judd's language, is "so organized that it rotates around its own center" does not carry over, and this calls for explanation. The remedy lies obviously in the reorganization of the curriculum and teaching method so as to remove the cleavage. The problem of transfer is symptomatic of a defect in our educational aims and ideals. If we can bring the school into right relations with the life outside of the school, the problem of transfer will take care of itself.

If transfer is synonymous with intelligence it is futile to inquire whether there is such a thing as transfer of training. It is more to the point to consider why or how the application of old meanings to new situations is so limited. A scientist, for example, may show a fine devotion to "truth" in his particular specialty, but exhibit all the frailties of common humanity outside of it. If there were an automatic "transfer of training" we should be entitled to expect him to be less susceptible to intolerance and bigotry than his philistine neighbors. But zeal for truth in the laboratory is no

guarantee of open-mindedness in other fields; an appreciation of mathematical or syllogistic cogency may leave other forms of reasoning apparently untouched; and the punctilio of card-playing and dueling warrants no inference with regard to conduct in general. In the same way training in a professional code of conduct may mean little more than a badge of class distinction, as exemplified by the rules of etiquette governing the conduct of the purely conventional military officer or the "gentleman." The problem is how to secure a wider range of application for intelligence.

This problem is not disposed of by repudiating the whole idea of transfer and multiplying the subjects in the curriculum so as to minimize the need of transfer. No education, however extensive, is very profitable if it does not bestow the power to deal with new situations. In order to facilitate transfer, our first concern must be to improve the quality of the concepts that are developed. A historical and social context, for example, would reveal the sciences as diminutive islands of verified knowledge slowly arising in an ocean of superstition, lazy custom, and bigotry, and would give to our concepts of scientific procedure a meaning beyond the limits of the laboratory and the library; and in much the same way a context of this kind might reasonably be expected to transform the rules of military and professional chivalry into the outward expression of the spirit of *noblesse oblige*. In a word,

the problem of transfer is bound up with the problem of training in thinking. There is no surer guarantee of transfer than the cultivation of social context and logical organization.

Of late years a number of influential theories regarding transfer of training have been put forward, all of which point to the inference that transfer must be secured through the development of meanings. According to Thorndike, transfer takes place through "identical elements." These identical elements are of two kinds, viz , "identity of substance" and "identity of procedure." By identity of substance is meant that we may do absolutely the same thing in different situations. "Addition improves multiplication because multiplication is largely addition; knowledge of Latin gives increased ability to learn French because many of the facts learned in the one case are needed in the other."[1]

If we were to limit our notion of transfer to matters of this sort, everything could be explained without difficulty in terms of mechanical habit. The doctrine, so far, means simply that if we have learned to do a particular thing, then we can do that particular thing. But if we turn to what is called "identity of procedure," the scene changes. "The habit acquired in a laboratory course of looking to see how chemicals do behave, instead of guessing at the matter or learning statements about it out of a book, may make a girl's methods of

[1] Thorndike, E. L. — *Psychology* (Briefer Course), p. 276.

cooking or a boy's methods of manufacturing more scientific because the attitude of distrust of opinion and search for facts may so possess one as to be carried over from the narrower to the wider field."[1] In situations of this sort the thing that is carried over is not a specific and unchanging operation, like adding three and two so as to make five, but a "habit" or "attitude." These attitudes are of a "general" sort, which means that the activity varies from one situation to another. We get identity only by a process of ignoring differences, as was done by the orator who, in speaking of the unity and harmony in nature, pointed to the fact that there is "one sun, one moon, and one great multitude of stars."

Stated in different language, Thorndike is on solid ground in arguing for "identities" of some sort, but this leaves us with the task of interpreting these identities. For Thorndike the identical element is apparently some changeless thing which is "general in the sense of occurring again and again in connection with almost anything else."[2] This is in line with the view discussed in the preceding chapter (cf. p. 182) that there are various "fivenesses" lying about in nature, which are fixed and changeless "situation-elements" waiting to be noticed. It is not hazardous to maintain that this is an extremely misleading over-simplification. The same may be said in connection with the present topic. There is no such thing as a fixed "situation-element" such as "dog," which is a

[1] *Ibid.*, p. 277. [2] *Ibid.*, p. 281.

part of every actual dog and the same in all dogs, just as fiveness was supposed to be a fixed and unchanging situation-element in all sorts of groups of five objects. To assume a core of "doghood," so to speak, "occurring again and again in connection with almost anything else," is too simple to be plausible. The identity of attitude by virtue of which we call so many different animals by the name of dog betokens a "system of response" such as was previously described and points to the fact that the problem in teaching is not to connect a mythological "situation-element" with a "response-element" but to develop "systems of response" through the cultivation of thinking.

As was said earlier in the chapter, the term habit covers two widely different forms of behavior. One of these is the fixed, unvarying response designated by such names as mechanical habit or acquired reflex. The other is flexible; it means that in some way or other old experience is applied to new objects or situations. Because old habits are carried over, the new object is *identified;* it is endowed with a character or meaning that it did not have before. This happens, for example, when a child recognizes a new and strange animal as a dog. In such an occurrence both the object and the reaction have something happen to them. The strange object is made over into an animal called dog, and the reaction is modified because the new dog is somewhat different from the others. In a practical sense this ability to make over the new object is what we mean

when we say that the child knows the meaning of "dog." Every time the reaction is extended to a new object the meaning is "generalized," so far forth. To make a study of dogs is to make the reaction more discriminating and serviceable, in advance of future needs and future applications. This is known as developing the concept of "dog." It gives the power to deal with new situations, which is the essential thing in transfer of training. But if this view is correct, meaning must not be regarded as a fixed thing, and the emphasis must fall, not on a fixed reaction, but on synthesis or reconstruction.

It is evident that Colvin's explanation of transfer through "generalized habit"[1] lends itself readily to the same interpretation. The same may be said of Judd's view that transfer is promoted through generalization. "The extent to which a student generalizes his training is itself a measure of the degree to which he has secured from any course the highest form of training."[2] Similarly Bagley's doctrine of transfer through the medium of ideals, his insistence on "the recognition of a conscious factor as the chief agency in the transfer of training,"[3] is entirely friendly to the view that transfer centers on meanings. The significance of "generalized habit," "generalization," and

[1] Colvin, S. S. — *The Learning Process*, pp. 238, 239; The Macmillan Company.

[2] Judd, C. H. — *The Psychology of High School Subjects*, p. 413.

[3] Bagley, W. C. — *Educational Values*, p. 201; The Macmillan Company.

"ideals" lies in the fact that they give the flexibility of behavior which we associate with the idea of intelligence. Intelligence is habit which is used to deal with new cases or situations.

"No one doubts, theoretically, the importance of fostering in school good habits of thinking. But apart from the fact that the acknowledgment is not so great in practice as in theory, there is not adequate theoretical recognition that all that the school can or need do for pupils, so far as their *minds* are concerned (that is, leaving out certain specialized muscular abilities), is to develop their ability to think. The parceling out of instruction among various ends such as acquisition of skill (in reading, spelling, writing, drawing, reciting); acquiring information (in history and geography), *and* training in thinking is a measure of the ineffective way in which we accomplish all three. Thinking which is not connected with increase of efficiency in action, and with learning more about ourselves and the world in which we live, has something the matter with it just as thought. And skill obtained apart from thinking is not connected with any sense of the purposes for which it is to be used." [1]

Education is sometimes called world-building. The term calls attention to the fact that effective education is a progressive remaking of our environment. Educated persons live in a world that is inaccessible to the uneducated except through education. In terms of

[1] Dewey, John — *Democracy and Education*, p. 179.

the individual, education is a process in which old habits are modified and new habits are formed. A pupil learning to write makes use of old habits since he has already learned to move things about with his hands. These old habits become the material out of which the new writing-habits are formed. When the pupil begins the study, say of American history, he has already formed the habit of thinking about foreigners and foreign countries in certain ways, he has some notions of geography and of government, and he has some sort of notion about the flag. All these ideas are probably very vague, although he does not realize this, but they represent responses that have become more or less habitual. These notions or habits furnish the raw material for the teacher. When the end of the course is reached, the pupil still has these notions or habits, but — if he has learned anything — they have undergone extensive transformation. The new facts that have been learned serve to reinterpret or give new meanings to the old facts. For example, the pupil may begin the study of history with a certain knowledge of elections and voting. When this knowledge is illuminated by the facts of history he is in a position to see that the right to vote is a right for which men in the past paid a big price and that the sanctity of the ballot is bound up with everything that we consider most important in our public affairs. He gains a sense of the duties and privileges of citizenship, not by a passive acceptance of what he is told, but by a recon-

struction of his old notions or habits of thought, and this process of reconstruction is a process of thinking.

Perhaps all this is familiar, even to the point of being trite. Yet we can hardly say that this point of view has become firmly established in our schools. For one thing, we still have with us the tradition of faculty psychology and formal discipline. When thinking is regarded as a separate faculty, the need of making over the actual experience or habits of the pupil is pretty sure to be ignored. In the palmy days of faculty psychology the teacher "used to converse with his pupils in this wise: 'Guerney, what is the difference between justification and sanctification? — Stephen, prove the omnipotence of God!'"[1] Some teachers doubtless had the common sense to probe into the answers made by pupils in order to find out whether the answers represented anything but words. But the notion that thinking or reasoning is an independent faculty necessarily creates an unconscious presumption in the mind of the teacher that if the words are used correctly the thought processes are going on as they should. If the teacher has only his own personal experience to enlighten him, it will take him a long time to reach the insight of the disillusioned pedagogue who said that words are a means of concealing the absence of thought. The number of teachers who have not achieved this insight is legion. Teachers are fore-

[1] James, W. — *The Will to Believe*, p. 1; Longmans Green and Company.

armed if they appreciate the necessity of centering education on the experience of the learner, for the purpose of changing that experience so as to produce different habits of thinking and acting. It is the failure to appreciate this that makes education degenerate into "book-learning" and "verbal knowledge."

Among our educational leaders the doctrine of faculty psychology and formal discipline has gone into the discard. The rejection of this doctrine opens the way for a more adequate doctrine of intelligence or thinking in its relation to habit formation. We need more insight into the nature of the process by which "complexes" or concepts are built up, in order that this insight may be used as a guide in teaching procedure. But there is a strong tendency to slur over this process of building up and to center attention on analysis, which means the coupling up of a fixed stimulus with a fixed response. A tendency of this sort, if carried to its logical conclusion, makes for a kind of teaching that is unpleasantly reminiscent of the doctrine of formal discipline. We become absorbed in specific responses with no sense of responsibility for the making over of old experience so as to create new attitudes and ideals and so make provision for the transfer of training.

When we concern ourselves with the cultivation of attitudes and ideals, we are confronted once more with the need of a guiding principle or social ideal. How should any given subject be taught? We can present the subject in either of two ways. We can treat it

as though it were a separate and distinct thing, carefully fenced in from everything else. Our aim then will be to impart a certain expertness in handling the facts and laws or formulae within that field. This is the sort of training that produces the expert or the technician; and such training, when rigidly adhered to, reduces education to a glorified bag of tricks. Or, in contrast, we can recognize the fact that every subject in the curriculum is interwoven with life, and we can make it our aim to show its broader meaning for human experience. On this basis teaching takes on a very different character and aim. When mathematics is taught, not only so as to show the abstract relations of numbers, but also to reveal its bearing on practical affairs and on the great discoveries that have revolutionized our conceptions of the universe, it will lose its formal and technical character and become invested with vital interest. When science is so presented as to make known the process by which men have gained control over nature and have found escape from the bondage of superstition, bigotry, and intolerance, it becomes a story, not merely of inanimate nature, but of the great drama of human development. When history is used to show what men have fought for and died for, and the whole tangled web of motive and circumstance out of which our present civilization has emerged, it is raised from a catalogue of a dead past to a revelation of the living present. Thinking makes it possible for the resources of civilization as represented

by the contents of our courses of study, to become so inwoven with the experience of the learner as to enable him to respond intelligently and appreciatively to all forms of human needs and aspirations, to all the things that enrich and beautify life. This is the proper meaning of culture in a democratic society. The democratic ideal in education is not merely to fit each individual for a job, but to insure to him the opportunity to have life and to have it more abundantly; which in political phraseology means the right to life, liberty, and the pursuit of happiness.

According to this point of view logical organization, social insight, appreciation, information, and skill all blend in the same process of learning. The distinctions represent differences of emphasis and nothing more. As was pointed out before, appreciation is the normal outcome of intellectual reconstruction. We cannot direct appreciation toward any object at will, but we can make over the object in such a way as to give it a new charm. It requires no great stretch of the imagination to catch something of the thrill that comes to the astronomer when comets are first transformed from "just stars" to satellites of the sun, swinging off into endless reaches of space yet held in place at the remotest point by the invisible bonds of gravitation. The learner reinstates the emotion by reconstructing the situation. Just as the physician can merely give nature a chance to effect a cure, so the teacher can only give our capacities of appreciation a

chance to function by providing the necessary conditions. And these conditions are, in the main, of an intellectual character.

Perhaps the case is not quite so clear when the purpose of an undertaking is to acquire certain information or skills, like learning dates and case-endings or achieving excellence in handwriting. Do reflection and inquiry have anything to do with such matters, or must they be handled on the old level of purely mechanical drill? We know that all learning involves attention, and attention implies considerably more than just nailing down the senses and the responses to the task that is to be performed. Attention is more like a lookout on a whaling vessel scanning the horizon for signs. That is, attention means an effort to put in new facts and relations, so as to facilitate the undertaking. In learning such a date as 1776, we may note that the first and last number make a total of seven, that the whole is an even number, that the Revolutionary War began a year earlier, etc. Learning dates in this way is just another case of building up an apperceptive background. Similarly the person who really desires to acquire proficiency in penmanship analyzes the position and movements of the hand and arm, notes the shapes of letters and the proportion of their parts, and other things of the same sort. Such activity does not rank high in the scale of intellectual endeavor, perhaps, and to call it thinking may be inappropriate. But at all events it is a form of activity

that involves synthesis as well as analysis, since the object is constantly being reconstructed. Moreover, when acquisition of information is the aim, there is usually extensive opportunity for a reorganization of the "apperceptive mass," and the extent to which such reorganization takes place is a pretty fair index to the effectiveness of learning.

The cultivation of thinking is an undertaking that calls for much more art in teaching than does the inculcation of more or less routine learning. The analysis of the process that we call thinking affords various clues which may be useful to a teacher. It may be worth while, however, to suggest that one way of stimulating thinking is clearly through the conduct of the recitation. Here we can profitably take a leaf from Socrates' book. The method which has come down through the centuries as the Socratic method is, in the main, the question-answer method, so directed as to make the learner develop and amplify what he has learned through a variety of applications. This procedure may start with a seemingly isolated fact or proposition and relate it to other facts or propositions in such a way that the entire set of facts must be reinterpreted in order to make them fit together. As an illustration we may take the hypothesis of the circulation of the blood. In order to reconcile this hypothesis with the known facts of the organism, it was necessary to reinterpret the function of heart and lungs and blood vessels so as to reach a new conception

of the manner in which a living organism maintains itself. All this was once a problem of hard scientific thinking. The chief difference between the scientist and the pupil is that, in the case of the pupil, the process of reorganization or reinterpretation of experience takes place under the guidance of the teacher. It is, however, something that the pupil must do for himself. The art of the teacher consists in knowing how to ask questions, how to suggest relevant facts, and how to present difficulties and suggest leads; and in appreciating the value, on occasion, of following up a false trail. The teacher's task is to furnish a maximum of stimulation and guidance, without hindering the pupil in the work of rebuilding his world.

A second way of securing worth-while results in teaching is through organization of material and supervised study in such a way as to make studying something more than the passive absorption of facts. The purpose of the organization is to make a demand on the initiative of the pupil. The problem in hand may be mainly deductive in character, as in the solution of a mathematical problem; it may be chiefly a matter of looking up facts in the library; it may involve considerable experimentation, as in testing methods of feeding stock on the farm; or it may be a problem of construction, such as drawing maps or plotting curves, or working with a piece of apparatus. The important thing is that conditions be made favorable for inquiry and interpretation on the part of the pupil. This is a

matter of developing a background and connecting the subject that is being studied with the pupil's interests, which calls for an organization of assignments, conditions of study, and recitations that will make for independent and effective thinking.

There are various movements in education that aim to secure a more effective cultivation of thinking. The movement that advocates teaching by the project method is a case in point. But our thinking about the nature of thinking still leaves much to be desired. It would help to secure a more adequate practical recognition of the importance of thinking if we could clear up our ideas as to what is distinctive in the thinking process, so as to secure clues that would be more serviceable in furnishing guidance for curriculum making and classroom procedure.

Questions and Exercises

1. Contrast the two conceptions of habit presented in the text. Show how habit may mean something other than the unvarying repetition of an act.

2. Point out the relation of habit to concepts according to each of the two interpretations of habit.

3. Show how the two views of habit have a bearing on the interpretation of transfer of training through "identical elements."

4. Explain the process of "generalization" so as to show its bearing on transfer of training. Illustrate.

5. Give examples showing the bearing of "social context" and "logical organization" on transfer of training.

6. Give an illustration to show that thinking need not be explained either in terms of a "faculty" or in terms of mechanical habit.

7. Give examples to show the relation of thinking to drill and to appreciation.

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PART IV

EDUCATION AND THE DEMOCRATIC IDEAL

CHAPTER X

THE DEMOCRATIC MOVEMENT IN EDUCATION

It is only a few years since we have come out of the shadow of a great war. During the progress of the war there was much talk about democracy, about the new era of peace and good will that lay just ahead. It was a war to end war, to make the world safe for democracy. There were times when the strain on the European nations involved in the conflict seemed more than human flesh could endure, when the endless sacrifices of life and energy and means of subsistence threatened to culminate either in revolt or in despair. At those times the flagging spirits were revived by reminders that all the hopes of humanity were at stake, that the supreme moment of all history had arrived. An exaltation of spirit was achieved which enabled men to accomplish the impossible. When peace finally came, civilization was all but ruined, yet it was felt that the result was worth the price. "Mine eyes have seen the glory of the coming of the Lord." All the world was on tiptoe to glimpse the coming of the new day. The state of mind was Messianic even among the nations that had gone down in defeat.

We can readily understand now that these high hopes were foreordained to fail. The mills of the gods

grind slowly at best. Past history cannot be set aside by act of Parliament, and a world-wide regeneration cannot take place over night. The passions that had been set loose by the catastrophe of war did not automatically become agencies for good after peace had been declared. The aftermath of the war has been disillusionment, intolerance, dictatorships, waves of crime, and quarrels over reparations.

There is danger that the loss of faith resulting from the war will prove an even greater calamity than the war itself. In political matters we seem to have grown cynical, which means that we expect selfishness to dominate, and do not grow indignant when our expectations come true. The scandal of the Teapot Dome, for example, found the American people curiously apathetic. For the time being, at any rate, there seemed to be less emotional reaction to "Thou shalt not steal" than to "Don't rock the boat." The tremendous events that had been crowded into the span of a brief decade had made us, emotionally, a people grown old. We had become incapable, temporarily, of reacting to things with the hot fervor of youth. We were like the grandmother in Tennyson's poem who accepted the vicissitudes of life with an equanimity that others found it hard to understand.

> Why do you look at me, Annie? You think I am hard and cold,
> But all my children have gone before me, I am so old;
> I can not weep for Willy, nor can I weep for the rest;
> Only at your age, Annie, I could have wept with the best.

The great crusade for democracy has ended in disappointment and distrust. In some respects it was like the great crusades of history, when the watchword, *God wills it,* thrilled the whole Christian world and made it rise up to wage war on the infidels. This earlier enthusiasm likewise lost itself in rivalries and distractions. To the men of those times those great expeditions must have seemed to be a colossal failure. They could scarcely be expected to appreciate the significance either of the incidental results of those wars or of the social forces which lay in the background and which found expression in those tremendous events.

If we take such occurrences out of their social context and observe how they fail to realize their aims, we are bound to become pessimistic. But if we take the wider point of view, things begin to look different. Perhaps the Crusades were merely an incident in the great work by which Europe became Christianized, and perhaps the unforeseen and unintended results of the Crusades furnished a large measure of compensation. The Crusades were not a miraculous happening, but were the outcome of centuries of teaching and preaching when there was no thought of Crusades. The social and religious forces making for the spread and the purification of Christianity were still in operation, even though the Crusades had failed, and these forces operated on a higher level after these wars than they had done before.

A Crusade for the recovery of the Holy Land would

be an impossibility in our day. But a Crusade for democracy was a possibility, as events have shown. The social forces lying back of these events were of a different kind. Our present concern is with only one of these forces or agencies, viz., secular education. Even a casual glance at educational statistics is sufficient to show that things have been changing rapidly. During the past thirty or forty years, so the experts tell us, the amount of education, *per capita*, in this country has been doubled. We have advanced from a nation of third graders to a nation of sixth graders. During this same period the enrollments of our high schools have increased tenfold, and many institutions of higher learning have grown in geometric ratio, so that their former size is beginning to look like the proverbial mustard seed. In fact many of them present visible evidence of having outgrown the wildest dreams of their founders. The buildings are crowded on small plots of ground and keep spilling over the edges, or they are separated by stretches of intervening city districts. The reason is not that adequate space was unavailable when the institution was laid out, but that no one could foresee the change which was to come. The swing toward education has now been under way for a considerable time. It is clear that something of tremendous significance has been taking place in this country, and to a greater or less extent all over the world.

It can hardly be doubted that education was one of

the important conditions which determined the occurrence and the character of the World War. It made possible the response to the appeal for the right to self-realization, self-expression, or self-determination which is symbolized by such words as liberty and democracy. The war has come and gone, but our faith in education abides. This faith has even been intensified by the war. We still believe that the world must be made safe for democracy, but we do not talk about it so much any more, and we do not expect the job to be done all at once. We now look to education to accomplish the result which political agencies have failed to bring about. As President Coolidge said not long ago: "Education has come to be nearer to the hearts of the American people than any other single public interest."

If we view education from the standpoint of world events, we see it in a new perspective, or at any rate with a new emphasis. It behooves the present-day educator to pause and take stock. Our modern education differs from that of earlier times, not only in sheer bulk or amount, but also in its quality or direction. Even a surface view of the situation shows that this is the case. With all their faith in education, the American people maintain a peculiar attitude toward abstract learning, as exhibited in our colleges and universities; they are noticeably lacking in reverence for scholarship, as this word is understood in the Old World. The novelist Barrie, for example, in one of his

books tells a story pertaining to this topic which anyone would recognize at once as more typically European than American. It is the story of a humble simple-minded Scotch family which was willing to make any sacrifice in order that Jamie, the son who had the mind of a scholar, might be educated at the university. There is no hint that this was undertaken in order that Jamie might then be in a position to draw a large salary. Nor, as I recall, is there any suggestion that Jamie's education would have practical utility of other kinds. Utility, as we ordinarily understand the term, had nothing to do with the matter. The field of Jamie's scholarship might be Sanskrit or hieroglyphics or the fourth dimension — it was all one. Scholarship was an end in itself; it was placed on a pedestal to be worshiped. To find a parallel to this attitude we must look, not to America, but to other European countries, and particularly to pre-war Germany.

To our average American citizen such an attitude is a strange thing. His ideal man is a man of affairs, not a man of great erudition. Apparently he has never been able to make up his mind definitely about professors. Just why a competent, able-bodied man should choose to spend his life in studying and teaching is likely to be something of a mystery to him. A population that bestows the title of professor on corn-doctors and parachute performers and the like is not greatly burdened with reverence for scholarship. Someone once wrote an article about professors, under

the title *The Third American Sex*, which is unpleasantly suggestive of what may be a prevailing state of mind. During Wilson's first campaign for the Presidency it was noticeable that some of his opponents made it a point to use the titles of "Doctor" and "Professor" in speaking of the candidate, while his supporters were equally careful to avoid these appellations. It was felt on both sides that these titles tended to discredit the candidate with the voters. At first sight there is something odd in the fact that this general attitude toward scholarship should be combined with a more whole-hearted support of education and with a more profound appreciation of its significance for the common man than can be found in almost any other country. This fact is not explained adequately by saying that education is appreciated because of its practical value. In spite of all the emphasis on the practical, the American people have never been willing to make vocational considerations paramount in education.

In order to understand this modern development we must see it in relation to its historic background. From its earliest beginnings our civilization has been dominated by the conception that the purpose of education is to prepare the individual for his proper place in society. This conception was simple and natural, for the reason that it was possible, generally speaking, to know in advance, with a high degree of accuracy, what that place was to be. These earlier

forms of society, as we commonly say, were aristocratic in their organization. That is, the organization was regarded as fixed and immutable in all essential respects. Every person was expected to remain in the class in which he was born. Liberal or cultural education, accordingly, was practically the exclusive possession of the leisure class, which could afford to devote itself to the cultivation of the mind and to disdain practical pursuits. The low-born had no dealings with these higher things. Their education had to do with matters befitting their fortune and station.

On this basis the business of education was relatively simple. The pattern according to which the individual was to be molded was at hand in every case. For example, in Plato's *Republic*, which, in spite of its intentions, is an excellent example of aristocratic organization, it is taken for granted that every individual will belong to one of three classes or groups, each of these having specific duties for which the members of the group are to be prepared by an appropriate course of training. All that the curriculum builders of those days had to do was to make a list of these duties and to analyze out the corresponding activities. Perhaps some historian will presently discover that Plato was the original inventor of the method of job analysis.

This scheme of education has proved more and more unsatisfactory under modern conditions. We believe profoundly that to limit the education of any part of the

population to strictly vocational or technical subjects is not in accordance with the principle of the "square deal." The persons to whom such a limitation is applied are shut out in advance from interests and activities in which they are entitled to participate. And the old ideal of liberal education is perhaps equally inadequate. The "cultivation of the mind" to which the leisure class used to devote itself has come to mean the study of a subject from the standpoint of the research specialist. We are coming to believe that specializing in research is just as much a vocation as specializing on the stock market or on styles in millinery, and that the one is not necessarily any more liberalizing than the other. The old conception of liberal education does not fit modern ideas and modern needs. In other words, the change in social organization has made it necessary to move toward a corresponding change in education.

Viewed from this standpoint there is nothing very puzzling in the fact that the American people tend to combine faith in education with distrust of scholarship. Without education no person can hope to share in his spiritual heritage, to have a part in our common life. But when this result is sought by cultivating the methods and the attitude of the research specialist, there is reason for distrust. Specialization is of immense importance and requires no apology; but it should not be confused with the aims of liberal education.

The upshot of the matter is that our whole perspective on education is undergoing a change. This change has been made inevitable by the development of democratic ideas and ideals. But unless we have a guiding principle there is bound to be much confusion and misdirected energy. That is why a careful understanding of the whole problem of education is an urgent need. We have, for example, rejected the aristocratic ideal of liberal education, but, having done so, we seem to have no respectable notion of what a liberal education should be like. We have given vocational education a place in the public schools, but we have never been able to decide whether or not it should be regarded as real education, on a level with all the rest. We believe that our curricula should be revised, but we do not know where nor how to begin. Our susceptibility to educational fads has become notorious. We are clearly in a transitional stage. The old and the new are in constant conflict, but the friction, as the saying is, generates more heat than light. In the language of the poet:

> We are here as on a darkling plain
> Swept with confused alarms of struggle and flight,
> Where ignorant armies clash by night.

It would be folly to say that the situation is wholly bad. For one thing, it affords us a valuable opportunity to cultivate the sense that we are living in a wide-open universe. We have been hemmed in to the "right little, tight little" chimney corner of tradition

long enough. And in spite of the conflicts and cross-purposes, education is steadily being made over in accordance with the needs and the spirit of the times. But our educational progress has been too much a more or less mechanical resultant of forces, rather than the product of a clear-eyed and far-seeing policy. There are too many false moves, there is too much waste of energy. If H. G. Wells is right in saying that the future depends on a race between education and catastrophe, this hit-and-miss procedure may spell ruin. In any case, if we believe in democracy, why should we not try to embody it in a comprehensive educational program? If the development of modern education has back of it the same idealism as that which found expression in the World War, what better service can our educators render than to make education safe for democracy?

As a first step in this direction we need to remind ourselves of the platitude that the world will not be redeemed merely by increasing the *amount* of education. There is bad education as well as good education. We are told in Holy Writ that the Pharisees were wont to encompass sea and land in order to gain a single convert, and that, having won him, they would then proceed to make him tenfold more a child of hell than they were themselves. How did they do it? The answer is simple. They educated him. They trained him thoroughly in their vicious formalism and self-righteousness, and the zeal of discipleship did the rest. Present-day

education is such a tangle of the old and the new; how can we tell which is which?

In the second place it is necessary to bear in mind that education cannot be divorced from social theory, from a conception or standard of social organization. This proposition is not enjoying wide favor at present. There are many educators nowadays who have scant patience with what they call philosophizing. To them the problems of education are all problems to be worked out with a yardstick and statistical curves. The irony of the situation is that these highly modern persons are a century or two behind the times. The tide of democracy has swept around and past them without even attracting their attention. Education, for them, is still a matter of training in skills and in the passive acceptance of prevailing standards, which is wholly in the spirit of the aristocratic tradition. No account is taken of the fact that the individual must either be fitted to become a cog in the social mechanism, or else must be educated according to some notion of how this mechanism should be changed. To suppose that the work of education can be carried on effectively without reference to the larger issue is plain self-deception. There is no such thing as being neutral.

The Greeks never made the mistake of supposing that education is a thing apart. Plato's *Republic*, as the title indicates, is a treatise on the state as well as a treatise on education. Despotic governments — wit-

ness present-day Russia — have always been watchful of what is taught in the schools. They know, whether our present-day educators know it or not, that the schools of to-day determine the government of to-morrow. Napoleon, at the height of his success, took pains to issue elaborate directions for the training of children in order to make the schools his ally for the perpetuation of his power. In this country there have been various attempts during recent years to determine the character of teaching by legislation, as in the case of legislative enactments against the teaching of evolution. These attempts were a violation of our long-standing policy, which decrees that the government must not undertake to determine the beliefs of its citizens. We have maintained this policy not because we believe that government is not affected by what goes on in the schools, but because we believe that no government can be trusted with the control of teaching and of the curriculum. It is a matter of principle. Dictation by governmental authority in such matters is bad, without regard to the merits of the particular issue. We cannot afford to jeopardize the future for the sake of an immediate result. In the nature of things, governments are concerned chiefly with security and perpetuation; they are suspicious of novelty and change. Consequently governmental manipulation of the schools tends inevitably toward stagnation and decay. On the other hand a democratic society is equally concerned to make provision for future changes

in the interests of progress, and for this purpose it relies chiefly upon its schools.

This concern about future changes may be taken as the characteristic and differentiating trait of a democracy. Whether a social organization or an educational system is aristocratic or democratic in spirit is not to be determined by an inspection of labels but by observation of its drift or tendency. The spirit is aristocratic when the general drift is toward keeping the social structure unchanged in apple-pie order, when our chief concern is centered on fitting the individual into a foreordained groove. The spirit of aristocracy may express itself in the doctrine of the divine right of kings or of the immutable perfection of the Constitution or in the demand for a differentiation between liberal and vocational education on the basis of the I.Q. It all comes to the same thing in the end. There is one issue which overshadows all the others, viz., whether our Golden Age is located in the past or in the future. It has sometimes been pointed out by critics abroad that we Americans tend to regard our institutions and practices as final; that our minds are closed, so that we are less tolerant and less progressive than other countries. No more serious criticism could be made than this. In so far as it is true we are not democratic, whatever we may choose to call ourselves. A truly democratic society regards its institutions and practices as instrumentalities that are to be modified or discarded with the growth of experience. It is con-

sciously in process of becoming; at every point in its history it is imbued with the sense that it is still in a formative stage. The purpose of education is not to fit the individual for a place in society, but to enable him to make his own place. Our business is not to train for three classes in society, as Plato thought, or for any other fixed number, but for as many classes as there are individuals to be educated. In other words, a democracy must expect to outgrow its organization as a child outgrows his clothes. The organization of the moment may serve a valuable and necessary purpose, but it must not be regarded as final. We put shoes on a child to protect his health and not to bind his feet.

Democracy in politics is a familiar notion. Democracy in education is a relatively new thing. It is true that the fight for universal public education was carried on in the name of democracy, but the purpose of this fight was to bring education to the people, not to put democracy into education. The reinterpretation and reorganization of education from the standpoint of democracy is our present task. We do not break with the past as long as we do not set up different social aims. We need a new program in order to embody the meaning of democracy in our system of education.

The attempt to realize the democratic ideal makes education a much more difficult matter. It is relatively easy to train a person for a specific function or place. But this, according to the democratic ideal, is precisely

what we must not do. Superficially there is an element of paradox in it all. Education must prepare for life, but life is a changing thing. The life of the next generation will be different from ours, and it will be different in ways that we cannot foresee. How then can we prepare for it?

Perhaps the simplest answer to this question is that education should enable the individual to educate himself when the time comes. We cannot train him in his future duties, because we do not know what they will be. One of the hardest things for us to learn is that it is not our business to impose our own standards upon the next generation. There are always plenty of people who are convinced that the world is going to smash every time the girls change the tint of their rouge. Sound education does not seek to prescribe belief or conduct, but to provide for the creation of new standards in accordance with new conditions and new needs. This, in substance, is the core of our educational problem. In so far as we fail at this point, we are reactionary, however much we may disguise the fact by a display of technique and scientific method.

In spite of all the improvements that have undoubtedly been made in education, we have not gone far in this direction. In educational psychology the emphasis is constantly gravitating toward habit formation, on the mechanical level. In curriculum construction we find the same thing. The newest

movements advocate the selection of material for training in specific duties, as though life consisted in an aggregate of specific duties and tasks. In methods of teaching we have been unable to escape from the ideal of "learning," of gathering information to be used at some future time. There can be no effective and thoroughgoing reorganization of education unless we envisage our problem from the social point of view.

It must be admitted that our schools have failed rather conspicuously to create in the pupil a sense that life is an adventure and that the achievements of the past are primarily so much material for dealing with the problems of the present. The schoolroom still has too much the atmosphere of the museum in which the specimens of knowledge are all duly labeled and catalogued and filed away. In the teaching of civics, for example, why should any normal, healthy youngster concern himself with the dreary skeleton of our governmental system? As a recent writer says: "Can we expect the student to develop an interest in the fact that Congress is made up of two houses, with a certain number of members in each house, and that our state legislatures have one or two houses with a certain number of members? I think not! But I do think we will find them interested in the broader and more fundamental question of the nature of representation itself. Are our legislatures truly representative merely because there are certain numbers of people entitled to select one representative? Can one man adequately

represent a district which is partly urban and partly rural? Is the development of 'blocs' such as the agricultural 'bloc' anything but an attempt to work out this problem of representation? Out of the development of such questions as to the nature of representation can come a basis for the consideration of our present-day legislative bodies."[1]

An approach of this sort has far-reaching implications both on curriculum construction and on the problem of teaching method. There is much to be done in both directions if we are to create in the mind of the pupil a sense of living on the ragged edge of things, a sense that life is an experiment, a constant venture into the unknown. This state of mind is as far removed as possible from the traditional attitude. It means that the emphasis should fall, not on conformity, but on insight, not on the acquisition of information and skill, but on that peculiar process of making over our experiences which we commonly call thinking. The pupil must do his own world-building. The development of thinking is the essence of method. But to cultivate thinking effectively we need a better insight into thinking as a process by which men become humanized and are trained for membership in a democratic organization. We need a different conception of the social order. Our schoolroom practices have not yet been brought into line with the newer social ideal. How

[1] Vinacke, H. M. — "Smugness in Civic Teaching," *Educational Review*, January, 1925.

should we organize our educational material, and how should this material be handled in the classroom, in order to make it contribute, directly and indirectly, to a better understanding of the world in which we live, a better understanding of what constitutes democracy? We have rejected the psychology of Herbart, but our theory of thinking is, for the most part, still on the level of Herbartianism.

In the Preface to a volume entitled *Heretics*, Mr. G. K. Chesterton says: "There are some people — and I am one of them — who think that the most practical and important thing about a man is still his view of the universe. We think that for a landlady considering a lodger it is important to know his income, but still more important to know his philosophy. We think that for a general about to fight an enemy it is important to know the enemy's numbers, but still more important to know the enemy's philosophy. We think the question is not whether the theory of the cosmos affects matters, but whether in the long run anything else affects them."[1]

By the same token we may say that the most important thing about an educator is his social vision. The question is not whether social vision affects educational practices, but whether in the long run anything else affects them. We want a better world to live in. To get a better world is no easy task, even under

[1] Quoted by James, W. — *Pragmatism*, p. 3; Longmans Green and Company.

favorable circumstances. But the circumstances have not been favorable. Vested interests have maintained that the social order must not be changed. Theologians have taught that men are totally depraved and incapable of better things. Hard-headed worldlings and cynics have argued that what has been always will be. Men have lived by selfishness and deceit, they have practiced cruelty and treachery, and they have waged bloody wars to secure ignoble ends. They have always done so in the past; what reason is there to think that they will not continue to do so in the future?

These views are less convincing than they used to be. There is a growing sentiment all over the world that the chief source of our ills lies in our social organization. We are the victims of our own machinery. We have built up geographical and commercial and linguistic and educational boundaries which inevitably breed crime and war. Men are neither as bad nor as good as they have been made out to be. They react to their social environment and this environment is capable of evoking both the best and the worst that is in them. Change the environment and you change the stimulus to behavior. Wars and crimes are not inevitable because the social environment is not unchangeable. Time was when the physical and the social environment alike were supposed to be beyond our control. It was our part to accept whatever happened in a spirit of submission and resignation. To put up lightning rods was evidence of impiety. But the brilliant

triumphs of science have wrought a complete change in our attitude toward the physical world. As a consequence we are constantly making over our material surroundings to suit our needs. On the social side our development is still a long way behind. The development is retarded in large part because of educational practices. When our educational systems become imbued with a humane social ideal, our social development will rival our material development and man will no longer be the creature but the master of his environment.

Questions and Exercises

1. A man may engage a tutor to whom he prescribes just what his children are to be taught. Does this relation between employer and tutor correctly define the proper status of a teacher in a democratic society?

2. Show why the democratic movement in education necessarily affected the status of the scholar in popular estimation.

3. Name some of the outstanding educational problems that are linked up directly with shift from an aristocratic to a more democratic form of social organization.

4. Is the government in a democratic society ever justified in prescribing any part of the curriculum? If not, why not? If it is, would you specify any limitations?

5. How would you justify the statement that every child in a democratic community has a claim to extensive educational opportunities? Can it be shown that the community owes this to the child?

6. How would you interpret the suggestion that the chief aim of education should be to enable the individual to educate himself?

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CHAPTER XI

THE IDEAL OF CULTURE IN A DEMOCRATIC SOCIETY

It is a commonplace that the present is an age of education. As we have frequently been reminded, education is the one thing on which we in America are all agreed. We call this an age of education because appreciation of education is so very recent. The development of education during the past generation from the elementary school to the graduate school is as striking and as significant a fact as anything that this present age of miracles can show. This much is so obvious that he who runs may read. But this development has brought with it a variety of results which are more or less indirect and which naturally are somewhat less obvious. At the same time that education in being pushed into every dark nook and cranny in the land, we are working out a conception of education that is different from what we had before.

The nature of this change may be indicated by a quotation from a recent bulletin of the research division of the National Education Association: "The three *R*'s must be given the first consideration. The work of the school has not been completed, however, when it has drilled the simple skills known as the three *R*'s into

the child's nervous system. It is not enough that the child be able to read aloud in a halting voice. He must learn to read silently, accurately, and with rapidity. He must acquire the habit of reading. He must be given the ability, in so far as his native capacity permits, to discriminate between trash and literature. No lower ideals than these should be accepted in the teaching of reading if the foundation for intelligent citizenship is to be laid."

On the face of it there is nothing very startling in this quotation. In fact the statement embodied in it is nowadays more or less of a truism. It tells us that elementary education must cultivate certain skills and that it must also cultivate certain appreciations. Pupils must be able to handle the three *R*'s with facility, but they must also be able "to discriminate between trash and literature." Nothing short of this will do as a "foundation for intelligent citizenship." But suppose we phrase the statement in different language and say that education must train both for vocation and for culture! Presumably this statement would likewise be acceptable without much demur. Yet this phraseology somehow changes the "feel" of the thing. We grow vaguely uncomfortable when the subject of culture is brought up. When the talk runs on culture and vocation, we begin to feel reverberations from a thousand distant battlefields. Our intuitions begin to warn us that there is trouble in the wind.

It pays to give heed to intuitions. They somehow

sense the meaning of things before the intellect is able to analyze out and formulate those meanings. When it comes to the subject of culture, it is hard to keep on the right road, and what is worse, it is hard to be quite honest. We must give our support to the ideal of culture, of course. A person who refuses to do this is apt to be regarded as a philistine, an academic roughneck. But there are dangers on the other side. Culture is often unpleasantly suggestive of a kind of anemia, and that won't do either. If we are put to it, we may take to quoting Matthew Arnold, the apostle of culture, who tells us that culture is "a study of perfection," that it means "to make reason and the will of God prevail." This sounds impressive, but is not altogether satisfying. It leaves us with the sort of feeling that is indicated by the inelegant expression: "Now you see it and now you don't."

The simplest way to get oriented with regard to this question of culture is to take a glance at its history. This question runs back to the very beginnings of educational theory. The ancient Greeks dealt with it, and they solved it in a manner that has at least the merit of simplicity and absence of bunkum. I do not recall that they interested themselves greatly in vocational training. Anyhow, vocational training, in their view, was for the working class, while culture was to be reserved for the rulers. They showed little disposition to complicate the simplicity of this arrangement by giving room to any disturbing sentiments about in-

alienable rights or natural equality. In their view some were born to toil and to do as they were told. Aristotle, for example, admits that, as society was then organized, there were some freemen and some slaves who really belonged in the other class, but makes no doubt that the good things of life rightfully belong to those possessed of certain endowments. The rest of the population had no place or function in the scheme of things, except as tools in the hands of their masters.

In spite of all the changes that have taken place, this view of education has never been entirely lacking in supporters during the centuries of the Christian era. The chief difference apparently between the Greeks and the pious exhorters of a later time who admonished the people to "do their duty in that state of life to which it should please the Lord to call them"[1] was that the Greeks said what they meant while the exhorters did not. In our own time we have witnessed a recrudescence of this theory, coupled with the allegation that it represents the correct conclusion to be drawn from the facts revealed by the mental tests. It is entirely clear, however, that the temper of mind and attitude of the present generation is of a very different

[1] "They [the masses] may know much for the places and stations to which Providence assigns them; may be good and worthy members of the community, provided they would be content to move in their own sphere and not meddle with things too high for them." The Rev. David Osgood, quoted by C. G. Bowers, *Jefferson and Hamilton*, p. 475; Houghton Mifflin Company.

sort. There are duties, to be sure, and there are "states of life," but we have grown suspicious of organizations in which these states of life are arranged in apple-pie order, with an upper and a lower crust. We are on the way to a new social order, and this new social order calls for a new conception of culture or liberal education.

This changing attitude or temper of mind is an expression of what we sometimes call the democratic movement. It is a revolt against the kind of social organization in which opportunity or status is determined by the accident of birth. In the old order of things the individual was made subservient to a scheme or pattern of organization which was regarded as fixed. This was really quite as true of the privileged classes as of the lower classes. The born gentleman, as well as the plodding serf, had his mode of life all mapped out in advance. His code of conduct, which defined debts of honor, the requirements of dueling, the nature of suitable occupation, and the like, was all the more inflexible in so far as it served mainly as a symbol of class. Theirs not to reason why. Loyalty to the king, loyalty to the nation, loyalty to religion were all fused with loyalty to the principle of special privilege. Education was made a tool for perpetuating this state of affairs, and in proportion as it served this purpose, it became the source of an incurable Bourbonism.

It is not difficult to understand why a system of education that was developed in such a society should prove unsatisfactory from the standpoint of democratic

aims and ideals. Its business was to educate the individual for a certain fixed status or class; not to give him a broadly social outlook. This type of education persisted despite the changes that undermined the idea of fixed social classes. As a consequence, technical or vocational education became primarily a means of private advancement, of securing weapons to be used against competitors in the struggle for existence. This kind of education has given us an alarming number of lawyers and business men whose expertness is not a blessing but a menace. The traditional cultural education is less dangerous, perhaps, though this is not always certain. In many cases this sort of culture becomes a kind of spiritual monastery, a haven of refuge for persons who deem their sensibilities too refined and too delicate for the rough and tumble of everyday life. It is this meaning of culture which makes the word leave a bad taste in your mouth. The name has come to suggest the sickliness and morbidness of an ingrowing soul. Very often this sort of culture becomes an expression of snobbery, of disdain for the fellow who is down in the ditch and doing an honest day's work. When it does take an interest in matters of public interest it is likely to be on the wrong side of every question. In a democracy, at any rate, the separation of culture and vocation tends to result, in both cases, in unlovely individualism. As Kipling says, "the Colonel's lady and Judy O'Grady are sisters under their skins."

This state of affairs could not last. Education had to be reorganized so as to make it conform to the new demands. In elementary education, as stated in the bulletin from which I quoted a moment ago, it is not sufficient to provide training in the three *R*'s, which are necessary for vocational efficiency. This work must be combined somehow with material of a cultural kind. The bulletin just referred to makes mention of "intelligent citizenship" and of the ability "to discriminate between trash and literature." As long as the emphasis was all on the three *R*'s, we were chiefly concerned with such values as discipline, thoroughness, and concentration. But now we avoid the word discipline, and devote ourselves by preference to such matters as interest, purposeful activity, and social efficiency. The high school, which at first concentrated largely on the classics and mathematics, found room in the course of time for the natural sciences, the social sciences, the modern languages, and a great variety of subjects that had a more or less direct vocational significance. There was a change all along the line in the general direction of bringing education into more intimate contact with the everyday environment.

The general trend of this development is clear enough. It is away from the separation between the "practical" and the "cultural" and toward a type of education that will combine the two. This new educational ideal we indicate by such terms as "citizenship" and "social efficiency." But it is clear also that we have

in mind a different kind of citizenship and a different kind of social efficiency from that which was sought in the past. We emphasize citizenship and social efficiency precisely because we want something different. Our present problem of culture or liberal education is the problem of defining the kind of citizenship that is demanded in a democratic social order.

Here again it is expedient to take our clue from history. The prevailing conception of citizenship in the past, as I said a moment ago, was that of membership in a fixed social order. To our ancestors this was the order of nature, or even the order established by God. This is why slavery did not shock them as it would shock us to-day, and why it did not seem unreasonable that the masses of the people should spend their lives in ignorance and ugliness and irksome toil, why the knights of old should travel abroad in the service of religion and humanity with never a thought of the wretchedness and misery at their very doorsteps. It is just another illustration, on a vast scale, of the fact that we can see only what we have learned to see. We of the present day give a large place in history to Rousseau, in spite of all his extravagancies and absurdities, because he helped us to see. From him, more perhaps than from anyone else, we have learned that there is nothing so sacred about the social order as had been supposed, and that the social order may easily become a means to grind the faces and the souls of the poor. In the days following Rousseau there was

much moonshine, in literature and elsewhere, about the state of nature, which was supposed to be greatly superior to life in civilized society. We have recovered from this pretty well, but we have not gone back to the old notion. Out of it has come the idea that social organization must serve as a means to the improvement of human life. It must have a flexibility that was lacking in the older dispensation. It must facilitate changes when changes are necessary for our common weal.

Let me try to illustrate. We know from the history of science that new ideas must make their way against a dead weight of inertia and prejudice. The classic instance, of course, is the persecution of Galileo. The same attitude of mind has manifested itself all along the line. People objected to the artificial lighting of streets because it turned night into day, which was contrary to nature; they objected to vaccination and lightning rods because they interfered with the will of Providence; they objected to anaesthetics because pain has a rightful place in the divine plan; they objected to bathtubs for reasons that I do not now recall — it is not unlikely that they objected first and thought up the reasons afterwards. One of the great obstacles to progress is this very human tendency to object just because a thing is new.

In some respects this tendency is less strong than in former days. The changes in our modes of living during the past fifty years have been so great as to

induce a different mental attitude. We have lived so fast that change has become a normal thing. It is sufficient to mention the telephone, electrical machinery, the automobile, the airplane, the radio, to indicate how far we have come within the span of a single lifetime. Moreover, we realize that man's conquest of nature is still in its beginnings. We have every reason to think that life in another fifty years will be vastly different from what it is now. The development of science has bred a sense of power, of adventure. We are bringing the schools nearer to life by introducing into them the story of man's struggles and achievements in the realm of physical things, and in so doing we are preparing our children to expect still greater achievements and greater changes in the future.

Within the field of the physical sciences the liberation of intelligence has been pretty well achieved. This is not due to any innate superiority on our part over our ancestors, but to a change in the environment in which we live. We have got the belief in magic and witchcraft out of our legal and medical practice, and largely out of our everyday thinking; we support scientific investigation with public funds; we breathe the air of natural science in the school, in the forum, and in the market place. Our social organization has been made over in such a way as to make it favorable for the further exploitation of nature in the interests of mankind. That is, the social organization has become, so far forth, an ally and not an enemy to progress. Education

for citizenship requires a proper appreciation of the methods by which man is able to control the forces of nature for his own ends.

It can hardly be said, however, that this mental attitude toward the physical sciences carries over freely to what I may call the spiritual things of our civilization. There is nothing shocking in the suggestion that in another generation or two the physical conditions of life will be as different from those of the present time as the conditions of to-day differ from those of the Middle Ages. But we are not so ready to believe that the institutions and beliefs and practices of society will undergo corresponding changes. Nor are we so ready to believe that such changes might be desirable. In fact there have been numerous attempts of late years to use the agencies of education for the very purpose of warding off these changes. It has been sought to determine in advance through the schools the beliefs of the next generation in matters of economics, politics, and religion. When a spirit of this kind gets into the schools and into our legal system and into our common life generally, the social organization becomes unfavorable to progress. This means a refusal to believe that the history of the race on this planet is the history of a great experiment in living. It means a repudiation of the idea of democracy and a harking back to what we have been trying to leave behind. Education for citizenship calls for the same open-mindedness in spiritual as in material things, the

same capacity for readjustment and for new points of view.

In the interests of fairness, however, it must be pointed out that the analogy between beliefs regarding matters in the field of natural science and certain other types of belief is of limited application. In the case of science we are concerned only with fact and evidence, and, consequently, the advancement of knowledge automatically leads to changes in belief. Our ancestors believed in witches, which was just a question of fact. When subsequent knowledge showed that the mysterious powers attributed to witches were purely fictitious, the belief in witches went by the board. But they also believed in the institution of slavery, in hereditary nobility, and in the wickedness of cannibalism. These beliefs went considerably beyond questions of fact; they were concerned largely with matters of value or preference. People might be entirely agreed as to the facts in the case and yet disagree in their attitudes or approvals. Why, then, pretend that a democratic attitude or program is more scientific than any other? And if it is not, why should it not be permissible to try to predetermine the beliefs of succeeding generations, and to use the schools for this purpose? It might even be argued that the democratic program is palpably insincere. This program pleads for training in open-mindedness, but its only test of open-mindedness is preference for a democratic attitude.

In order to obviate a criticism of this kind it is necessary to limit the point of comparison between beliefs regarding matters of natural science and other beliefs. Science has its own methods of procedure with regard to verification. When we are dealing with values the procedure is necessarily different.[1] But this difference in procedure is compatible with a certain identity of attitude. Scientific integrity requires that the formation of new beliefs shall be determined solely by evidence, and not by bias or tradition. Similarly the concept of democracy means that no item of doctrine or creed may be fenced off for the purpose of exempting it from changes in the way of rejection or revision. Democracy requires the same open-mindedness toward values or interests as science requires toward evidence. In this respect the spirit of science is the same as the spirit of democracy.

This demand introduces a new element into the situation. In its political meaning the word democracy connotes, first of all, that the rights or claims of every person are entitled to an impartial consideration with regard to the rights or claims of every other person. If we extend the idea of democracy so as to make it apply to the full range of conduct, the conflicting rights or claims that are to be adjusted are not simply those which occur in the relations of different persons to one another, but also those which occur within the life of the same person. A farmer, for example, desires to

[1] For a discussion of this procedure see chapter xv.

cultivate the soil; he also desires to have reasonably free and easy contacts with other persons. To some extent these interests are in conflict, since life on the farm involves a certain degree of isolation. As it happens this particular conflict has been largely adjusted through the introduction of telephones, radios, and automobiles. But the farmer of our illustration may be interested also in books, in aesthetic matters, in politics, and in civic affairs. If these interests are to receive recognition, certain adjustments must be made regarding the expenditure of time and money. Since we are dealing here with "interests" or values, the adjustment is not simply a matter of discovering new facts, as in the case of scientific investigation. The question is rather what sort or degree of recognition is to be given to these various interests, and, further, what sort of new interests should be cultivated. One possible procedure is to cultivate certain of these interests at the expense of the rest. The farmer might decide to devote himself more or less exclusively to money making, or he may be content to make a bare living in order to indulge his proclivities for politics or for fishing. He may refuse to have anything to do with schools or with law enforcement, on the ground that these things do not interest him. Such exclusiveness of interest is the root of all sorts of evils. As exhibited in personal conduct we call it selfishness; as expressed in collective conduct it signifies traditionalism, or perhaps its opposite, viz., a lack of historic

sense. The principle of democracy does not provide a ready-made formula for the adjustment of conflicts. What is to be done in any given case must be determined in the light of the surrounding circumstances. But democracy requires a sensitiveness to all manner of human interests. Such sensitiveness or responsiveness is necessary if intelligence is to be truly liberated for progress in social matters in the same degree as has been achieved in natural science.

It is scarcely necessary to insist that social life is indispensable to the development of the individual, or that our institutions and beliefs are the fruits of past achievements. But social organization in making development possible may at the same time impose a wrong direction and a wrong limit. It may indoctrinate the individual with the belief that poetry is effeminate and so limit him in that direction. It may teach him that slavery is divinely ordained, that manual labor is degrading, that women are inferior beings, that war is a necessary and noble institution, that doubt is impiety, and that toleration is a sign of weakness. It may breed a certain hardness or callousness, which is a sign of arrested development.

Human progress is rarely in a straight line. We oscillate between extremes. We swing from despotism to revolution, from feudalism to nationalism, and from making the world safe for democracy to dictatorships and quarrels over reparations. Education is no exception to the rule. The endeavor to escape from

the straight-jacket of social organization led to the repudiation of all social restrictions and the glorification of whim in the name of "liberty" and "nature." But in times of stress and strain, when real or fancied dangers to our institutions arise, we go back to straight-jacket methods. We attempt to mark off certain beliefs and practices, of a political or economic or religious sort, for the purpose of protecting them against criticism; which is to say that we establish another social order based on divine right. The irony of it all is that we do so in the name of democracy. When the educator turns to any of the serious unsettled questions of the day he finds himself confronted with a high fence and a sign, No Trespassing. What, then, is there left for him to do, but to occupy himself with the eternal verities, to teach that the earth is round and that Columbus discovered America in 1492? Or to put it more generally, what is meant by training for citizenship from the standpoint of the democratic ideal?

I do not mean to suggest that the unsettled questions of the day should be discussed and duly settled in the classroom. Even if conditions permitted this to be done, it would simply be the kind of teaching which has been defined as "the art of taking advantage of the helplessness of children." Indoctrination is a dangerous business from the standpoint of educational ideals. But indoctrination, even if it is kept out of the schools, is going on constantly outside of the schools. Society incessantly dins its beliefs and its prejudices into our

ears — through the newspapers, from the platform, over the dinner table, and on the street. It was because Rousseau realized this so vividly that in some of his less lucid moments he would do away with the state of society altogether. The danger in this constant and inescapable social pressure to the ideal of democracy is obvious. What are the schools going to do about it? We can hardly assume that the future is adequately protected if children are taught the facts about the shape of the earth and the discovery of America.

The danger does not lie in the fact that children take over the ideas of their parents and associates. If this were not the case, each generation would have to begin at the same point as the preceding generation and there would be no such thing as progress. It is all a matter of how these ideas are taken over. William James has told us that the average person is an old fogy at the age of twenty-five. After that age, he says, there are no important changes in fundamental attitudes and beliefs. I like to think of education as a process which, if I may put it that way, extends the period of childhood indefinitely. The social pressure, unless it is counteracted in some way, makes us old fogies before our time, robs us of the freshness, the flexibility, the eagerness for new vistas in which the child is so immensely superior to the adult. Society molds us into its own likeness and sends us out into the world without capacity to change. Perhaps society cannot be blamed greatly for doing this. But

when the schools do the same thing it becomes a crime of the first magnitude.

A person cannot live intelligently and effectively without convictions of some sort. But neither can he live intelligently and contribute to the betterment of things if he is incapable of changing his convictions. The single-track mind is a dangerous thing. The educational system of the past, speaking by and large, has never been seriously concerned with the problem of securing continued flexibility, of preparing the way for social changes in the future. It would not be far wrong to say that this problem is the distinctive item in a democratic program of education. In such a program the school becomes an agency maintained by society for its own progressive reconstruction.

From this emphasis on flexibility it is but a short step to a definition of culture. In terms of social organization democracy means capacity for change, for growth, for the progressive cultivation of common interests. This same idea reappears when we consider the question of culture. The individual, like society, must have this capacity for reorganizing his world. This is what fits him for membership in a democratic society. Science, literature, art, vocation — all become a means to this end. The farmer who buys land to raise corn to feed hogs in order to buy more land is a type of the well-organized life, except that the latter does not run around in circles. It leads constantly to the dawning of new powers, which is the

democratic conception of culture. Taken in this sense, culture, as Arnold says, is not a having but a doing; it is a continuous remaking of experience, a rethinking of old and familiar facts by means of new contacts and relationships. In Dewey's language, culture means "the capacity for constantly expanding in range and accuracy one's perception of meanings."[1]

Much of the confusion that has prevailed in our educational system during the past decades has resulted from the fact that we had no clear-cut educational ideal. The result naturally was endless friction and waste. In the elementary school there was much complaint that the attempt to enrich the curriculum had led to overloading and distraction, that thoroughness and seriousness of purpose had been sacrificed, that what passed as interest was in fact just systematized dawdling. The new material had been introduced, but it was being taught by old methods and old standards. In the high schools and colleges the uncertainty resulting from the introduction of so many new subjects bordered on bewilderment. The whole notion of cultural or liberal education had been so stretched and twisted that no one could say any longer what was meant by it. The old faith in the classics was disappearing, but there was no new faith to take its place. We were leaving the old moorings, but with no place to go. Consequently every time a new subject presented itself for recognition there was another fight. But the old-

[1] Dewey, John — *Democracy and Education*, p. 145.

line subjects had no ground to stand on. As far as the unaided eye could see, they had nothing to distinguish them from other subjects except a tradition and a disposition to occupy the front seats. Any subject could make a plausible claim that it was a vessel of this elusive thing called culture. Why not? What reply could be made, for example, to the professor of agriculture who claimed special merit for his course on stable manure on the ground of its "particularly great economic and cultural possibilities"? There was no telling any more where one might not encounter the atmosphere of culture. But the idea that culture was inherent in all subjects was just as fallacious as the notion that it was a peculiarity of a choice few. Whether a subject is cultural or not is determined, not by any trait inherent in the subject itself, but by the contribution that it makes to the development of the individual.

As I suggested previously, the social changes that are going on are making for a new ideal of culture. The development of science and industry in particular has shown impressively the possibilities of cross-fertilization between vocation and the life of social and intellectual interests. Vocation is becoming a gateway to participation in all the major interests of the race. The traditional opposition between vocation and culture is beginning to disappear. We are learning to think of culture not as a possession but as a way of life, an expression of the whole personality in everyday occu-

pation. During the war it was the larger purpose that gave a certain dignity to the war gardens conducted by middle-aged professors and even to their military drill. The same end is achieved by a vocation which gives an outlook on a wide context of relationships. It enables the builder to see his skyscrapers and suspension bridges as embodiments of social service and science and beauty and the glory of God.

With regard to the application of this ideal of culture to school practice and organization, it is evident that the type of education which tries to use the practical activities of the workshop and the home for purposes of social insight is in line with this development. So is the attempt to educate children in the art of self-government while they are in the schools. So again are the revisions in the organization of material and in classroom methods which place the stress on initiative and independent thinking. These are all movements in the direction of making the material of the curriculum contribute to the reinterpretation of the social environment. There are at present many forces in education that are making for this reorganization of subject matter and method. This type of education directs intellectual development toward wider ranges of social understanding and fosters habits and methods of thinking that carry over into later life.

Democracy has sometimes been compared to a young giant just waking up and not fully conscious of his real strength. In education we have not yet reached an

adequate realization of our power to secure the liberation of intelligence for application to the problems of the future. Our educational system is not yet organized so as to make sure that the next generation will perform its daily round of tasks and duties in the light of historical perspective, with an appreciation of the means by which man exercises control over his physical and social environment, and with a realizing sense of social interdependence in the struggle for the improvement of human life. It is not yet wholly clear that the great experiment of civilization will prove to be successful. There will be future changes calling for new adjustments. What these changes will be it is impossible to foresee. But we of the present have a large share in determining whether these changes, when they come, will merely write another chapter in the sorry record of brutal conflict and struggle or whether they will be met in that spirit of culture which seeks to make every change contribute to a better understanding, better coöperation, and more cordial good will among men.

Questions and Exercises

1. Explain why the term culture sometimes has an unpleasant connotation which it did not have originally.

2. Show how the changes in man's physical environment, as a result of his control over the forces of nature, have prepared the way for a new conception of culture. Why are conditions in our nonphysical environment less favorable for such a development?

3. Is there any contradiction between saying that the schools must promote democracy and saying that the schools must avoid indoctrination? Give reasons.

4. Give an illustration of culture as defined in the text. Would you say that culture in this sense is necessarily "social" in character? Explain and give reasons.

5. From the standpoint of the doctrine of culture presented in the text, point out where, in your judgment, Rousseau was right and where he was wrong.

6. What justification is there for James's view that we are old fogies after the age of twenty-five? What is the bearing of this on the idea of culture?

7. What connection, if any, is there between the democratic ideal of culture and the "liberation of intelligence"?

8. It has been said that science is in a peculiar sense an agency of democracy. Explain.

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CHAPTER XII

SCIENTIFIC METHOD AND HIGHER EDUCATION

In a novel entitled *Frankenstein*, Mrs. Shelley, the wife of the poet, tells the story of a young man who, as a student of natural science, contrived to make a human figure of gigantic proportions and to breathe into it the breath of life. This creation in the course of time turned out to be a monster who progressively destroyed all that was near and dear to his creator and finally destroyed his creator as well. The originator of this monstrosity had neglected to humanize his product, with the result that his own handiwork turned against him and accomplished his ruin.

The story of Frankenstein, as Mr. E. E. Slosson has pointed out, is symbolic of a tendency in all human institutions. Man is constantly constructing agencies of one kind or another, which in the course of time achieve a certain independence and then turn upon their creator. Our legal system was devised in the interests of justice, but it has developed a multitude of technicalities by means of which clever wrongdoers find it possible to prey upon their fellow men. Our industrial system has developed an amazing capacity for quantity production, which provides an abundance of goods for all; but it is based on division of labor,

which threatens to make work as mechanical as the ticking of a clock. Our creeds embody the insight and wisdom gained by our ancestors; but they constantly tend to become ossified into unthinking habit and to bar the way to further insight. Our business organizations eliminate waste and inefficiency, but they easily grow into monopolies or combinations that gain a strangle-hold upon society. Even our customs and fashions tend to become tyrannical. Our customs, according to Emerson, are the happy ways of doing things. So they are, unless they get out of hand. Without proper regulation custom grows into red tape, and fashion dictates crinolines and bustles or short skirts and hair bobs for everybody, even in cases when the results are singularly unhappy. It is the old story of water and fire. They are useful servants, but brutal masters. The very agencies that are contrived for the purpose of humanizing life are likely to have the capacity of becoming a menace.

Man is supreme on the planet because of his capacity for adapting means to ends. In order to secure control of the means for realizing his purposes, he has had to take a roundabout way. He found it necessary to develop an elaborate technique for investigation, which is known as scientific method. One of the outstanding characteristics of modern times is the development of science and its application to life. As a result of this development the material conditions of living and our outlook on life have been transformed. We are living

in an age of automobiles and airplanes and radios and labor-saving machinery; the ends of the earth are just around the corner, and the forces of nature have become the servants of human desires. We are learning to think of man's career on the globe as a contest between intelligence and the hampering conditions of inanimate nature and of tradition. The advance of science has meant the banishing of belief in magic and witchcraft and superstition, and it has given us a dawning consciousness that all our beliefs and all our institutional life are subject to revision without any assignable limit. Our imagination is challenged. Man's future is in his own hands. He can control his destiny because his intelligence has been able to fashion an instrument by which intelligence is set free. That instrument is science.

It is surely pardonable for the human mind to indulge itself on occasion in an admiring survey of its own handiwork as represented by science. But it is also pertinent to remind ourselves that, like Frankenstein in the story, we have produced a creation that is full of untold potentialities. The World War has shown what may happen when human beings take to themselves the attributes of the gods. As was remarked in a previous chapter, many competent observers are of the opinion that, in the event of another World War, science would destroy the civilization by which it was produced. The theme of the present chapter, however, is less spectacular. It has to do with the

obstacles and dangers that have been created as a result of the application of science to the processes of education.

Even a moderate acquaintance with recent developments in the field of education is sufficient to show that here too science has been a transforming influence. The application of science to the facts of the mind has given us a very different notion of the learning process and of the springs of conduct. We have abandoned the notion that education consists in the training of faculties and are moving in the direction of making the school a stimulus and opportunity for talent and capacity, instead of a prison with chain-gang methods. In the construction of the curriculum the use of scientific method has resulted in the elimination of much that required useless drudgery and in the addition of new material designed to make the individual an intelligent member of his community. This development is especially marked in elementary and secondary education, but the college too has been affected. Moreover, the whole educational system is becoming permeated with the spirit of science. We are becoming accustomed to the scientific study of literature and history and agriculture, and to the idea of scientific methods in home making and spelling and mathematics. Science has become a name to conjure with. The study of education is still in the first flush of enthusiasm for scientific method. There is a widespread belief that scientific method is a key that will unlock every door.

It would be stupid, as well as perverse, not to acknowledge unreservedly the tremendous debt which modern education owes to science. Nevertheless a survey of the situation leaves one with the uncomfortable sense that all is not well in Zion. Our educational system has been reorganized in the direction of accommodation to every variety of human capacity and interest. We might expect, therefore, that our courses of study would prove a great adventure for every normal individual; that at some point or other he was bound to strike fire; that sooner or later he would thrill to a glimpse of human achievement and of human destiny. An unsophisticated bystander might imagine a college as a place where brainstorms and concentrated rushes on the library were among the normal incidents of the day.

It is not necessary to explain at length that this is hardly a true picture of higher education. In fact the discrepancy is great enough to suggest that our enthusiasm for science and scientific method must have left something important out of the reckoning. The organization may be a triumph of scientific achievement, but it is lacking in soul. The machine has not been sufficiently humanized. How else can we account for the fact that just at the time when our colleges and universities are showing such startling enrollments, when higher education is in demand as never before, the charge of a prevailing lack of intellectual seriousness should be most emphasized? Our students don't read,

says one critic. They don't think, says another. They have no industry or ambition, says a third. They come to college at great expense of time and money and then make it necessary to apply methods of forcible feeding if they are to get what they came for. By some strange irony "student activities" is a phrase used to denote almost everything except study. Jazz, movies, fraternities, football — these be thy gods, O Israel! It is distressing to find that our educational progress seems to have created an alarming indifference to, if not a positive dislike for, what we have been accustomed to call liberal education.

Let me quote what a recent critic has to say on the subject. "The number and the proportion of the careless and the idle and the stupid and the unfit, of those who are passively floating in the educational current, and come to college because just now there is nothing else to do; of those whose fathers send them because of a faith in education, but who themselves do not set particular value upon it or upon anything else whose acquisition involves labor or character; of those who are attracted by the promise of good times in fraternity or sorority; of those who want the imagined social prestige conferred by the diploma; of those who are not entirely sure that a Saturday-Evening-Post-short-story husband or wife may not be the outcome — the number and proportion of these have increased until they threaten the peace and safety of liberal education and are disturbing the technical

schools as well." "The slovenly spelling, the slovenly handwriting, the slovenly expression, the slovenly thinking, the slovenly besmudged page, the evidences of no capacity, no interest, and no industry that a large minority (I am not saying majority) of the students will unblushingly hand him [the instructor] would be a disgrace to the meanest institution. This is the sort of rottenness that exists beneath the goodly outside of 'the most perfect educational system the world has ever seen.' The toleration of it is an offense that is rank and smells to heaven."[1]

Even if the criticism is exaggerated, as is not unlikely, we may concede that there is something seriously wrong somewhere. Our young people are very resourceful and persistent in sidestepping the blessings of education, but this may be only a perverted way of showing that they are really intelligent after all. They somehow sense the fact that education tries to make them over into something they don't want to be. Perhaps the critics of higher education would stand a better chance to locate the trouble and to find the remedy if they were blessed with a keener sense of humor. College professors, as we all know, are specialists. They are tremendously interested in such questions as the constitution of atoms and chromosomes, the synapses of nerve endings, the structure of lyric poems, and the relation of subject and object in cognition. I do not

[1] Showerman, Grant — "Intellect and the Undergraduate," *School and Society*, February 26, 1921, p. 5.

mean to imply that these are not important matters. Far be it! But in an experience of twenty-five years I have never known a professor whose range of interest really covered a list of subjects such as I have just mentioned at random, to say nothing at all of those which might be enumerated. Yet these same professors grow purple with indignation if undergraduates do not exhibit, in a dozen different subjects, the same fine zeal for learning which the professors themselves have carefully cultivated for one or two. As the French say, it is to laugh.

There is little profit in complaining that human nature is not different from what it actually is. Let us rather take stock of conditions. The times have changed. The students who came to college a generation ago brought with them an entirely different outlook on life and cultivated a different set of interests. They argued about such things as free will and predestination, about sin and regeneration, about inspiration and immortality, about natural law and final causes, and other questions of a similar sort. Along with these interests they brought with them an ideal of scholarship or culture which represented an unbroken tradition extending all the way back to the time of the Greeks. This ideal marked a sharp contrast between the man of culture and the man of practical affairs. It had its roots in an aristocratic organization of society. The practical man was a being of an inferior order. The things of the spirit were symbolized by white collars

and attained their most perfect mundane embodiment in college professors.

All this has passed or, at any rate, is passing away. For better or for worse, the traditional theological and social creeds are losing their hold. In the eighteenth century, or thereabouts, it was the fashion among scholars to write books to prove that this is the best of all possible worlds. They admitted, of course, the existence of certain evils, such as disease, accidents, and crimes. But they invented ingenious arguments to prove that all evils are really blessings in disguise. They would not admit that there was anything really wrong anywhere in the universe. "Whatever is, is right." Education was not for social progress, but for personal improvement. These books were called theodicies, because they undertook, in the language of a contemporary poet, to "justify the ways of God to man." The men who wrote these books wore big wigs and were men of standing and influence in the community. They have all been dead a long time. No one writes that sort of literature any more, except politicians seeking reëlection to office.

Many things have happened during the past two centuries. The development of modern science has demonstrated that man can make himself the master of his physical environment. He can cross oceans and continents with all the comforts of home; he can draw on the four corners of the earth for his subsistence; he can drain swamps, kill the mosquitoes, and make

the wilderness blossom as a rose. Man may be a worm of the dust, but he no longer feels that way. The attitude of humility and patient resignation has become uncongenial. His imagination has been stimulated and his confidence greatly increased. If the conditions of life are not satisfactory, why should they not be made satisfactory? In political and social matters the same disposition or attitude is being developed. We no longer cultivate the disposition of acquiescence and surrender. Life is what we choose to make it. We are in no mood for any more theodicies; we do not intend to let men with big wigs tell us that things are just as they should be, and that it is ungrateful to grumble about oil scandals or tariffs or unemployment or waves of crime. We want to know what is going to be done about it. We are no longer satisfied with the kind of education that seeks to create for itself an ideal world of art and literature and philosophy out of all relation to the affairs of a struggling, sweating humanity. Nor are we satisfied with the kind of education that aims at nothing beyond technical expertness and personal advancement. We want to know how the training is going to be used. We want to know how education contributes to a broadening of insight and of sympathy and of the spirit of service.

This shift in emphasis is largely due to the influence of science. By means of science we have succeeded in building for ourselves a new world to live in. As a result the old attitudes and the old interests are being

neglected. They are too remote and too detached from this wonderful new world to which science has introduced us. But now that science has wrought this transformation it shows a disposition to become arbitrary and tyrannical. The achievements of science, as we know, are due to the endless ingenuity and devotion of specialists to whom science is an end in itself. They cultivate a remoteness and detachment of their own, which they expect the students to imitate. Devotion to science means to them leaving the world behind. But the students don't want to leave the world behind. This is too much like closing the door that has just been opened. Consequently their enthusiasm is not aroused. Their applause and admiration does not go to great scientists, but to executives, to captains of industry, to men of affairs, to the "men who do things." Great learning, without practical application, arouses no envy in the bosoms of our students. In fact, scholastic distinction is frequently avoided by them, for fear that they might be mistaken for professors. This does not mean a lack of idealism, but it means a different kind of idealism. We have not as yet adjusted our educational practices successfully to this new attitude, and this is one important reason for the prevailing lack of intellectual interest among our students.

Our faith in education is stronger than ever. Men everywhere are turning to education for the cure of our social ills. We are talking education and supporting

education as never before. But the plain fact is that we have not yet succeeded in making over our higher education in accordance with new conditions and new needs. Consequently we are now in a period of transition and confusion. A new humanism is on the way.

This fact creates for education a new obligation and a new opportunity. There is any amount of latent idealism among our students, let the critics say what they will. But this idealism is frittered away in frivolity or hardens into a philistine practicality, because it is not properly directed. We cannot hope to make them over into scientific specialists. Perhaps it would not be desirable to do so if we could. But neither must they remain strangers to the spirit of science, to the love of knowledge for its own sake. If science has made the world what it is, we must protect the scientific attitude of mind. It symbolizes open-mindedness, capacity for growth, and the promise of continued progress in the future.

Fortunately the alternatives that are open to us are not confined to a rigorous specialization on the one hand and a crude practicality on the other. There is a third road that we may take. Our mistake in the past has been that we have been too much disposed to cultivate science in higher education apart from the context or setting which gives to science its human values. We have emphasized the spirit and the ideals of research and of academic scholarship, to the neglect of wide perspectives. Our students learn many things,

but they do not learn to fit their knowledge together into a world picture. It is Hamlet, with Hamlet left out.

Let me try to illustrate. Suppose we consider for a moment how physiology explains simple cases of human behavior, such as that of a boy scratching his head. The explanation runs something like this: First there is an irritation in the scalp; this irritation then sets up certain processes in the nerves leading to the brain, where the excitation is switched over to the nerves controlling the arms and fingers. These nerves set in motion the muscles of the arm so that the arm is raised and the finger is applied to the right spot.

This sounds dignified and scholarly, but it differs somewhat from the account given by the psychologist. The latter is likely to explain in this fashion: First the trouble is reported to consciousness by a sensation of itching; then there is a desire on the part of the afflicted person to remedy the matter, and finally there is a movement of the arm in response to an intention or act of will. The two explanations use entirely different sets of categories. Just how they are to be reconciled is not made clear. The situation is even worse if the mother of the boy adds her explanation. She will say perhaps that he scratches his head in company because he won't pay attention to what she tells him and because he is wholly indifferent to the requirements of polite society. These different explanations are plausible only as long as they are not permitted to mix.

The odd thing about it all is that our students constantly pass from one classroom to another, without any suspicion that they are the victims of misplaced confidence.

Let me add one or two more instances. In physics the students are told that they are dealing with certain forms of matter. In other courses they may learn that the immediate objects of our senses are not physical things at all, but sensations or impressions of the mind. These impressions may be very different from the objects to which they refer. In geology we learn that the causes of things run back as far as we may care to go, that there is no end to the series of causes. But this does not square with the doctrine of a First Cause, which has no other causes back of it, just as our codes of conduct for business or law do not seem to square with the Golden Rule.

I am reminded at this point of an ancient conundrum. What would happen if an irresistible force should meet an immovable body? Perhaps we are in a position now to solve the riddle. If they should meet in the mind of a student, nothing at all would happen. The irresistible force would remain irresistible, and the immovable body would remain immovable. Our students study a little of this and a little of that, and when they have secured a sufficient number of credits we certify that they are educated. The complaint of a lack of intellectual interest means that in spite of all our advance in education we don't succeed in inducing

students to think. They absorb, but they don't assimilate. One reason certainly why there is not more genuine intellectual interest among our students is the fact that the subjects of study are not made a challenge to previous beliefs and opinions, that we do not seek to secure a widening of the horizon through a reinterpretation of old experiences. That is why education constantly tends to become a process of accumulating information or to degenerate to the level of strengthening old prejudices. Make education a challenge in this sense, and the question of interest will take care of itself and thinking will become an inevitable result.

It would be unfair to place all the blame on the colleges. At the present time the colleges as well as the public schools have a much less homogeneous body of students than was formerly the case. All sorts of people go to college these days who would probably not have gone in former times. Perhaps it is true, as is sometimes asserted, that the average of ability has been materially lowered. At any rate a smaller proportion of the students now come from homes where ideals of culture and of learning are fostered. They come to college bringing with them ideals that smell of the soil and the workshop and the market place. They desire much more fervently to get on in the world than to acquire the power "to see life steadily and see it whole." They are likely to think of college primarily as a place for becoming equipped with implements of

warfare that will be useful in the struggle for existence. The function of the college is to humanize these ideals by showing that the poet's dream of a brotherhood of man, a kingdom of heaven on earth, in which men shall dwell together in sympathy and understanding, without fear of ignorance, poverty, disease or injustice, is in sober truth a realizable ideal. Youth reacts generously and spontaneously to humanitarian ideals. But it is folly to assume that such idealism is a direct and inevitable outcome of absorption in the problems of the specialist. There is cause for wonder that college teaching is as productive of humanizing influences as is actually the case.

Some teachers seem to think that any departure from a rigidly technical treatment of subject matter is a compromising of scientific standards. They propose, as they say, to teach their subject "straight"; by which they mean that in their judgment the subject matter should be organized and presented in accordance with some abstract principle of logical arrangement and not with reference to the life of the student. In taking this stand they sometimes seem to experience a holy satisfaction in sacrificing the youth of the land to the great Moloch of science. The situation is often tragic, but it also has its humor. On the one hand we find the amazing notion that teaching is not scientific unless it is deadly dull, and on the other hand we see an exhibition of passive resistance that reaches the level of a fine art. Why should it be unscientific to organize

subject matter so that it will serve as an effective means to the end that we have in view?

If we follow out this question we come upon the true inwardness of the situation. We are led straight to an educational creed, to the notion that the intellectual life is a kind of monastery which can be entered only on condition that we forswear the world and all its works. This notion is a hangover of the Aristotelian tradition. The Aristotelian ideal of the "cultivation of the mind" has come to mean a narrowness that is unable to see the woods on account of the trees.

If we accept such a standpoint there is little more to be said. The only thing to do is to go on as we have been doing, for the purpose of rescuing a choice soul here and there from the mob of misfits that populate our colleges. The situation suggests, however, that there is need of a revision of our educational creed. Science must remain a servant and not be permitted to become the master. It must be used to open up the great new world into which we are entering, instead of closing the doors before our faces. The goal of education is not merely to achieve intellectual expertness and resourcefulness, but to experience a spiritual rebirth. The discovery of contradictions among our beliefs is a first step; it corresponds to the conviction of sin in religious conversion. When a person senses these contradictions, he begins to understand that he has been going through life with his eyes closed, and he learns the meaning of Plato's remark that an un-

examined and uncriticized life is not worth living. He is then ready for the great discovery which most students never make at all, viz., that all our human living, individually and collectively, is essentially an experiment. The one thing that really matters in education is a realizing sense that we must go on continuously to new insights in all our fundamental beliefs and practices. We learn little after all from our books and our laboratories, if they do not reveal to us the fundamental truth that the human race has its destiny in its own keeping, that the earth is man's and the fullness thereof. The central problem in higher education is to clarify this new outlook so as to set intelligence free for the betterment of human life.

There is no real basis for the notion that the attempt to teach a subject so as to show its significance in the life of man detracts in any way from its purity as a science. There is a change in context and organization, but that is all. When we study a subject like evolution or the psychology of moral conduct with a sense that important beliefs are at stake, it may be more difficult to maintain the thoroughgoing objectivity and impartiality of scientific method, but the rules of the game remain what they were. The sense that there is much at stake is not necessarily a disadvantage. As William James says: "If you want an absolute duffer in an investigation, you must after all take the man who has no interest whatever in its results: he is the warranted incapable, the positive fool. The most

useful investigator, because the most sensitive observer, is always he whose eager interest in one side of the question is balanced by an equally keen nervousness lest he become deceived."[1] By the same token, the investigator who has an "eager interest in one side of the question" can gain an appreciation of what it means to prove a thing up to the hilt, which the person who had no interest in the outcome can never share. This doubtless explains why so much of the training in scientific method results in nothing better than the acceptance of beliefs on the authority of the professor.

Let a vital interest enter into our study of science, and the whole quality of what we are doing becomes transformed. The meticulousness of the scientist, his infinite patience in gathering data and testing his conclusions — all this takes on a quality that is akin to art. It means the perfection of workmanship, like the final loving touches bestowed by the painter upon his canvas or by the poet upon his sonnet. We sometimes speak of a "beautiful demonstration" with reference to a scientific principle; but the demonstration is beautiful only if our emotions are engaged. Science means detachment; it means rigorous standards and stern, cold self-discipline. Our higher education is being criticized so severely because it lacks these qualities. By a curious paradox these traits can be developed only if they have a background of hot partisanship, of passionate affirmation. When such

[1] James, W. — *The Will to Believe*, p. 21.

partisanship is properly directed or controlled, it blossoms into effective method, discipline, and love of truth.

There has been too much talk about education in the abstract. It is high time to recognize the fact that just education, regardless of quality, will not make men sweetly reasonable. The recent World War is evidence enough to the contrary. As one disgusted observer said at the time, it looked to him as though the other planets used this one as a lunatic asylum. And the period since the war has not been much better. It has been a pitiful exhibition of selfishness, fear, and intolerance. We have been afraid of bolshevism and have discovered a bolshevist behind every bush. We have been afraid of the teaching of science and have tried to settle scientific questions, like the theory of evolution, by legislative enactment. We have been afraid to have our past history looked into and have tried to legislate on what shall be taught as history in the schools. We have been afraid to tolerate other religions and other races and have organized against them. We have set up standards of patriotism which made it an act of disloyalty to think. And we have tolerated men in high places who did not disdain to play upon such ignoble fears for their own selfish ends.

These are strange things to happen in the land of the free and the home of the brave. It is doubtful whether we were ever more out of touch with the spirit of our institutions. The significant feature of it all is the

fact that the educated portion of the public has not proved equal to the emergency. We cannot gloss over the fact that our educated leadership has failed. What are we going to do about it? It is not sufficient to say that such things are the inevitable aftermath of war. The purpose of education is precisely to make such things impossible. With all our emphasis on scientific method it is only too evident that we are not learning to think straight or even to think at all.

The development of science is evidence that man can control his physical and social environment for his own ends. There is every reason to believe that this control will become more extensive and more complete as time goes on. Science with all its triumphs is still in its infancy. The prophets and seers of the race have seen visions and dreamed dreams; we look to science for the means by which these visions and dreams will be brought to fruition. The cultivation of science, therefore, is a collective enterprise, a common concern. Our present problem is to reorganize our educational agencies so that each successive generation may share in the enthusiasm and inspiration that comes from this new sense of power and this new conception of how human life can be made a thing of dignity and beauty and worth. This attitude must be fostered if the spirit of science is to prevail in our colleges and in the affairs of our common life. The continued development of science and our hopes for the future are both dependent upon the intelligent participation by our

educated youth in the coöperative enterprise which we call our civilization.

Questions and Exercises

1. Explain the difference between scientific method and common sense. Give an illustration.

2. Explain why science has made so much difference in our outlook on the world. Show how this difference carries over to our attitude toward social evils and the social organization generally.

3. What, in your judgment, is the bearing of the foregoing chapter upon the question of placing greater restrictions upon admission to college?

4. Give an illustration to show how lack of perspective may make the vigorous application of scientific method a source of error.

5. What did Plato mean by the statement that an unexamined, uncriticized life is not worth living? Show the bearing of this statement on the discussion of the present chapter.

6. How would you reconcile the statement that the scientist must be rigidly objective and impersonal with the statement that he must have a vital interest in the outcome of his investigations? Illustrate.

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CHAPTER XIII

SPECIALIZATION VERSUS GENERAL EDUCATION

The question of a uniform versus a differentiated curriculum has been with us a long time. It belongs to the class of questions that crops up in every generation without ever being finally and completely answered and put upon the shelf. The reason is that such questions embody divergences of fundamental belief which are perennial. As regards the curriculum, we are fond of saying that education must be a preparation for life, but there is less agreement than formerly on the meaning of life or the meaning of education. Modern education is not a single thing, but is a welter of cross-purposes and conflicting tendencies. It embodies both the inertia of tradition and a spirit of revolution. This chaos is an inevitable outcome of the fact that, as education develops, it becomes an increasingly accurate reflection of the divergences in our standards of value or our philosophy of life.

These divergences confront us on every hand. Should we, for example, aim at intensive training in fundamentals or at training that has variety and range? Should we recognize individual differences by extending the differentiation of curricula into the lower grades? Should we undertake to teach subjects like mathematics

and chemistry at all, or should we break up such subjects into the mathematics and chemistry of agriculture, of pharmacy, and of engineering? How may we reconcile the conflict between the requirement of common elements in education with the pressure for variety in forms or types of education? If we listen to the babel of argument, the result is likely to be bewilderment rather than enlightenment. Unless he is in possession of a guiding clue, the wayfaring man, however astute, is pretty sure to lose his way.

Some cynic once said that there are only seven jokes in all the world. These seven, he added, show signs of wear and tear even in the early dawn of history; but in the struggle for existence they have learned to adapt themselves to all manner of environment and circumstance, with the result that the original seven have become differentiated into an appalling mass of superficial variations, beneath which the essential identities are thinly concealed. Perhaps this interesting suggestion can be turned to account in the present case. It might be argued that all the perplexing problems which beset the path of the curriculum builder are merely special phases or variations of one fundamental issue. In one way or another they all perpetuate the ancient conflict between the Aristotelian ideal of culture and crass vocationalism.

In its original form, it is true, this conflict can hardly be regarded as a live issue. Even though we be disposed to concede that the traditional ideal of classical

training possesses a certain charm and dignity, its ignorance and scorn of practical affairs and its fetish of discipline are too much of a handicap. The present trend of things is all against what Sydney Smith called "the safe and elegant imbecility of classical learning."

But the rival of classicism is regarded as even more unlovely. It refuses to recognize the simple fact that man liveth not by bread alone. With cash value as its standard and quantity production as its goal, it has little to commend itself to intelligent educators. From this standpoint Kant's claim, for example, that philosophy, although it bakes no bread, can give us God, Freedom, and Immortality would not be considered a valid reason for retaining philosophy as a subject of instruction. The purpose of a curriculum is to provide bread, and everything else is moonshine.

At the present time it is scarcely necessary to debate the question in the form in which it first arose. The two contending ideals have undergone considerable modification with the passing of the years. Generally speaking, it is now conceded on all hands that education for life requires both technical or practical training and training which has no direct vocational bearing. Yet this agreement seems to leave the fundamental disagreement as great and as irreconcilable as ever. This disagreement is reflected in the conflict over the uniform versus the differentiated curriculum. In reading the arguments we need not look far into the background to discern the familiar issues of duty versus interest,

discipline versus information, culture versus utility, and all the rest. The trail of the serpent is over it all.

By way of illustration let me cite a more or less typical quotation on each side of the question. In the view of the former Secretary of State, Mr. Charles E. Hughes, as presented in an address, "there is at present a bewildering and unsuccessful attempt at comprehensiveness. It fails of its purpose in giving neither adequate information nor discipline. It asks too much of the student, and too little. I believe that we need to have a few fundamental, substantial studies which are thoroughly mastered. I am one of those who believe in the classical and mathematical training and I do not think that we have found any satisfactory substitute for it."[1]

It is quite apparent that Mr. Hughes is unequivocally in favor of a uniform curriculum. The opposition, however, contends that there are no such "fundamental substantial studies" as Mr. Hughes implies. This other view, which claims to be "the natural outgrowth of the theory of evolution," holds that "the content of a school subject is determined by the use to which it will be put. It quite willingly grants that the chemist shall determine the content of chemistry courses for the prospective chemist, but it emphatically maintains that the same right shall be granted for the use of the engineer, the doctor, the housekeeper, the farmer, and the layman.... Arithmetic for the layman may be

[1] *Journal of the National Education Association*, September, 1922.

determined by a collection of arithmetical problems which the layman needs. Mathematics for chemists is determined by an investigation of the mathematics used by chemists. . . . The sociology needed by the layman is obtained by an examination of the social problems which confront the layman, just as the sociology needed by the sociologist is determined by the problems encountered in the field of sociology."[1]

In this quotation the reason which lies back of the demand for a more differentiated curriculum is clearly indicated. Chemistry as ordinarily taught is chemistry "for prospective chemists," which is clearly just as vocational as any other kind of chemistry. It is implied that our traditional courses of study are, in the main, an attempt to impose upon everybody the vocational attitude of certain persons whom we may call, for convenience, academic specialists. Under the auspices of an age-long tradition, these persons have constituted themselves the high priests of education, and have undertaken to appraise all educational values in terms of their own particular predilections or occupations. The claim that this type of training is inherently superior to all other types cannot be conceded. It is time to insist that "the same right shall be granted for the use of the engineer, the doctor, the housekeeper, the farmer, and the layman."[2]

This criticism is by no means without foundation.

[1] Charters, W. W. — *Journal of Educational Research*, May, 1922.
[2] *Ibid.*

The Aristotelian ideal of culture, with its emphasis upon the cultivation of the intellect, naturally became identified in the professor's mind with his own occupation of study and research. Consequently a type of education fashioned after this model was necessarily regarded as the best preparation for life. If the Aristotelian tradition is sound, then devotion to specialized study and research undoubtedly has a plausible claim to represent the higher life, provided that our devotion is to "pure" rather than applied science. Other forms of human activity are of a lower order and may properly be disregarded as much as possible. With a predisposition of this sort it is not strange that the professor's attitude toward his subject should be akin to that of the brooding hen, which, as James says, regards it as entirely self-evident that eggs are the most utterly fascinating, never-to-be-too-much-sat-upon objects in all the world, and that nothing else really counts. And if the hen could compare and reflect, it would doubtless construe the undeniable lack of enthusiasm for eggs that is exhibited in some quarters as evidence of intellectual and aesthetic depravity.

This conception of culture, however, has fallen upon evil days. The present generation is not so willing to concede offhand that it is intrinsically more noble to specialize in mathematics than to specialize in dairying or in sanitation. Hence the difficulty in distinguishing clearly between liberal and practical education. It

seems plausible to hold that the academic specialist is just a person with a highly specialized type of interest, and that he should not be permitted to set up his personal idiosyncrasy as a model to be copied by everyone else. But there is also great plausibility in the view that the practical must not exclude the theoretical. There is neither breadth nor depth to the kind of learning that is forever asking about its own cash value. A student who gets no inspiration from the subject itself, without regard to utility, is not going to develop into a first-class man. He will never learn the meaning of science or acquire the vision and the initiative that comes from carrying over the scientific or purely theoretical attitude into the realm of "practical" affairs. There is no escape from the everlasting paradox that a subject is more practical if we do not try too hard to make it practical. The truly practical is something that lies beyond the immediately practical. It is only by maintaining something of a disinterested or scientific attitude that we secure the margin of extra knowledge which enables us to meet emergencies. In the language of an advertisement announcing a blanket sale: "It's the part that hangs over that keeps you warm."

These considerations, however, seem to lead us into a dilemma. On the one hand the academic specialist appears to be just one specialist among others, with no right to set up his specialty as inherently superior to any of the rest. On the other hand the attitude of

the academic specialist appears to be the supremely correct attitude. Our only escape from the coils of specialization or narrow practicality is to exalt the attitude of the academic specialist as superior to the others by reason of its devotion to the pursuit of truth for its own sake. These two views cannot both be right.

The explanation of the difficulty lies near at hand. If we take a closer look at the academic specialist we soon discover that we are of two minds about him because there are at least two of him. There is, first of all, the specialist to whom the boundaries of his subject are as the Great Wall of China. Devotion to pure knowledge means to him an exclusive preoccupation with one range or set of facts. Such specialization is bound to be more technical than human. The scholar who buries himself in his library or in his laboratory is frequently a most hopeless sort of person outside the narrow limits of his special interests. A man does not automatically acquire culture, simply because his vocation happens to be research instead of politics or business. What we miss in such persons is the mellowness and sweet reasonableness, the breadth of outlook and the sensitiveness to a wide range of human values, which makes a man truly human and which we have learned to prize as the finest fruit of a liberal education. The narrow specialist easily becomes philistine in his attitude, priding himself on his loyalty to a single interest and on his avoidance of all idealistic nonsense

about improving the world and leading a life of service. Loyalty to his subject means to him a relative indifference to the great mass of achievements which we call civilization and which has found expression in its literature and art, its science and philosophy, and its social organization.

The other type of academic specialist is cast in a very different mold. To him the subject or field of his special interest has become, to put it broadly, the center of a comprehensive outlook upon life. He knows his subject, not only in its technical aspects and internal ramifications, but in its relations to the other affairs of men. He does not indeed cease to be an academic specialist, since his primary business is the pursuit of knowledge. But he is in pursuit of a different type of knowledge. In the physical sciences, for example, he aims not only at the mental equipment of the expert in research but also at a knowledge of what these sciences have contributed to make the world what it is at present; how they have affected military history, how they helped to break down the feudalism of the Middle Ages, how they have molded present times and circumstances, not only with respect to the material conditions of life, but with reference also to our moral and social life, through the multiplication of labor-saving devices, through the cheapening of printed matter and the means of transportation, and through the organization of commercial and industrial enterprises which make the present age unique in the history

of the world. He aims, in short, to gain at least a glimpse of the process by which man rose from the status where he was a slave of nature to the status where he became its master, and to secure some appreciation of the revolution in our whole outlook upon life that was brought about by this change. This sort of insight is both liberal and practical, because it enables us to understand and to react effectively to the world in which we live.

These two types are presumably more or less familiar to all of us, even though the common run of academic specialists falls somewhere in between the two extremes. On the whole, the tendency, at present, is away from narrow specialization. The professor is in process of living down his evil past. The world is more disposed than formerly to concede that it is possible to be a professor without being a myopic fool. The significance of this tendency lies in the fact that we are moving toward a different conception of what constitutes a cultural or liberal education. The essence of such education is being placed more and more in the type of learning which aims to see its subject matter in the perspective of broad human interests. The traditional ideal of culture was lacking in the quality of sympathy and range of insight; and it was the reaction against this narrow, aristocratic ideal that provoked the movement toward an equally narrow vocationalism.

It is not easy to determine how much of the apparent disagreement in the matter of educational ideals is

really a disagreement about means rather than ends. A person may, for example, have strong leanings in the direction of a genuinely liberal education, but may be unable to see how learning can be related to life, except through the cultivation of vocational or quasi-vocational ideals. On the other hand a person with substantially the same leanings may see no road to his goal except the one that is traveled by the academic specialist. The former will naturally be an advocate of the differentiated curriculum, while the latter is more likely to champion the uniform curriculum.

As I have tried to show, however, there is no guarantee that either road will lead to the desired goal. The narrow academic specialist is likely to miss the larger, more sympathetic and generous outlook on life as completely as the crudest vocationalist. As between these two, there may be little to choose. The refinement of literary and artistic sensibilities is scarcely admirable when it is linked up with callousness and intolerance in regard to other matters; just as the refinement of scientific judgment is much less impressive when it shows itself compatible with any degree of credulity or gullibility outside the laboratory. Academic specialization must show other fruits than this in order to constitute an acceptable educational ideal. But the remedy does not lie in subordinating knowledge to ideals of utility. We do not acquire the scientific spirit by picking up various odds and ends of science, like a bargain hunter in a department store. The

leaders of science were frequently rebels, because they had to break with established modes of thinking in order to conduct their investigations. The real temper of the scientific mind is precisely what we miss if we do not see beyond laboratory technique or vocational utility. When our vision is thus limited, the result is what the diplomats call an "accommodation." We are rigorously scientific, perhaps, in some particular field, without being greatly inconvenienced in the passive acceptance of tradition in the other relations of life.

For an indication of what is meant by the larger outlook, the history of the sciences is instructive. This history embodies a struggle all the way with superstition and with tradition. Generally speaking, it has been a fight along the whole line of advance. Growth in knowledge cannot take place without a readjustment of existing beliefs and practices, and this always involves some kind of struggle. Moreover, this growth calls for more growth. It raises problems that can be solved only by the acquisition of further knowledge. Why did men turn to the study of pagan literature and of nature after the Dark Ages? Why was so much importance attached to the theories of Copernicus and of Newton? Why was evolution studied with such infinite patience and persistence? Was it not, in large part, because man's whole conception of the universe was at stake? And is it not precisely this understanding of science that is endangered when it is taught

mainly to develop technical expertness or to exploit it as a tool for practical activities?

Stated briefly, then, the traditional classical ideal of education was correct in its insistence that the attitude of learning must be a detached attitude, but it failed to appreciate the obligation of learning to make men human by cultivating common interests and sympathies. On the other hand vocationalism was correct in its conviction that learning must have a direct application to life, but it made the mistake of interpreting this application in terms of mere vocational utility. Eventually the mounting dissatisfaction forced classicism into certain concessions to the elective system in order to make itself less forbidding to the rank and file. But it is disposed to look askance at proposed innovations of the curriculum; whereas vocationalism is perpetually clamoring for further differentiation. As I have tried to show, these two positions do not exhaust all the possible alternatives. Teaching may be inspired and directed by the ideal of cultivating the capacity to share in the experience of the race through an understanding both of the methods by which man has gained control over material agencies, and of the agencies and circumstances which have transformed his social and spiritual environment. This ideal furnishes a new standard by which to determine both the quality of teaching and the selection of subject matter.

That this ideal is significant for teaching would hardly be denied. That it is equally significant for

the selection of subject matter, however, is apparently less obvious. At any rate, it has been argued that, since sound education consists essentially in range or comprehensiveness of outlook, the only really important thing is to provide our educational subject matter, whatever it may happen to be, with a wide setting. In other words, a vocational curriculum can serve cultural ends just as well as any other kind of curriculum. If the universe globes itself in a drop of dew, as Emerson says, we can abstain from the feverish hunt for material with which to introduce the pupil to the universe. As far as the ideal of liberal education is concerned, our whole creed can be summed up in an allusion to Mark Hopkins and his celebrated log.

We need not quarrel with the claim that vocational or professional training may serve the interests of cultural education. Any training that widens the horizon and cultivates the disposition to share in the lives of others through sympathetic understanding is cultural to that extent. But this is far from saying that the aims of a liberal education can be served equally well with any kind of educational subject matter. It may be true that if we knew everything about dewdrops we should find recorded in them the whole history of the cosmos. We may grant this, for the sake of the argument, and still maintain that dewdrops are unpromising material for the study of Shakespeare or of the American Constitution. To put it differently, a course of study that centers on a vocation

may have large cultural possibilities without being the equivalent of a thoroughly liberal education. In such a course of study the historian, the economist, and the philosopher are likely to find that their respective subjects are represented only in the most casual and fragmentary fashion. A vocation touches many subjects, but this is not saying that it can give the insight which is made possible when these subjects are organized separately and studied for their own sake. What a vocation teaches about political history or the tariff question or the drama is likely to be incidental and haphazard; it does not furnish the subject matter in the form best suited to create an abiding and independent interest. In the matter of teaching any given subject, the ideals of liberal and of practical education tend to converge. From the standpoint of curriculum construction they remain apart. In a liberal education there are various centers of independent interest and organization; in a vocational education everything hinges on one common center of interest.

It is often said that the first obligation of our public school system is to provide common interests and a common understanding as an indispensable basis for democracy. That is, the public schools are pledged to the ideal of liberal education in this sense of the term. Those subjects which are most serviceable in facilitating intellectual intercourse among men are entitled to first consideration. The three *R*'s, for example, stand first on the list because they are unrivaled in the number

and variety of insights that they give us of the social life by which we are surrounded. But this principle of selection will not result in identical curricula for all communities. If the purpose of education be to impart an understanding of life, the point of orientation will necessarily be the life of the immediate vicinity. Communities vary in language, in historical background and traditions, in industrial, economic, and climatic conditions; and these differences may warrant corresponding differences in the subject matter of the curriculum. Differences of this sort, as well as differences in the capacities and talents of the pupils, must be taken into account, but none of these differences should be made an excuse for overlooking the fact that we are, first of all, members of the human race.

In this connection, I wish to hazard the suggestion that the doctrine of individual differences has been greatly abused. There are, undoubtedly, all sorts of differences among human beings, but these differences do not justify the construction of water-tight compartments in the curriculum. In our reaction against the rigidity of the past we have been far too ready to introduce new courses for the purpose of accommodating every shade of interest. Individual differences should serve first of all to give a new meaning to the teaching of fundamental subjects. The fundamental subjects in the curriculum are fundamental because they are so intimately interwoven with the life outside of the schools. Consequently it is possible, in teaching these

subjects, to make appeal to a wide variety of interests. A course in history, for example, may attract one student through its dramatic appeal, a second through curiosity about origins and causes, and a third through the love of excitement and adventure. All this is grist for the teacher's mill. The means may be various, though the end is one. However wide the range of interests that are enlisted, the result in every case may be both a taste for logical organization and a gain in insight into the meaning of present-day institutions and practices, with a corresponding gain in the power to coöperate with others in matters pertaining to the improvement of human living.

The point is that individual differences can be made to carry a superstructure of common interests. This possibility is worthy of more attention and study than it has received in the past. It is doubtless true that our educational materials should have reference to marked differences in children, whether these differences be due to native endowment or to accidents of environment. This calls for a greater variety of courses than was deemed necessary under the old dispensation. Despite the variety, however, a superstructure of common interests should be the final result. There is much to be said, in some instances, for the attempt to cultivate an interest in mathematics or chemistry in connection with an interest in agriculture or engineering. An approach of this kind may be very effective in showing what mathematics and chemistry have meant in the

experience of the race. In other cases an appreciation of racial experience may be gained through the medium of biology or the social sciences; which means that, in spite of the differences in subject matter, there is a common insight into the meaning of our history and of our institutions. But unless some such perspective is achieved, we are not moving toward our proper educational objective, but away from it.

Our conclusion, then, may be stated in some such form as this: The ancient conflict between culture and vocationalism led naturally to the opposition between the attitude of the academic specialist and the attitude of the practical man. This opposition, however, is not final, because it is possible for us to revise our notion of culture and of academic specialization. This revision is now under way and is in the direction of a recognition (*a*) that vocational or professional education may be made a means of social insight; (*b*) that liberal education requires a more extended cultivation of various relatively independent interests than is possible in a more strictly vocational or professional education; and (*c*) that individual differences are no bar to the fostering of common sympathies and aims. Unless this revision is successful, the movement toward narrow vocationalism is bound to continue. The view that academic specialization, in the narrower sense, is somehow superior to other forms of specialization has nothing back of it except an aristocratic tradition. But academic specialization, in the sense

that vocational interests are subordinated or made instrumental to an understanding of life, can still claim supremacy in public school education, provided that our teaching and our curricula be made to conform to this ideal. The spirit of this ideal is our best protection against the tyranny of a new aristocracy, based on a caste system of vocational interests. Aristocracy means incrustation or inflexibility; whereas the spirit of democracy is the spirit of inquiry and experiment, for the progressive extension and improvement of our common life.

Questions and Exercises

1. Education must take account of individual differences and it must also look after the "common elements," which means an ignoring of individual differences. How may these two views be reconciled?

2. If one subject may be as productive of culture as another, why should not different types of curricula have the same cultural value also?

3. Give an illustration to show how individual differences may be recognized in the same course. If this can be done, is there any necessity for differentiated courses of study, except for strictly vocational reasons?

4. Is there any difference between the claim that there are certain "fundamental substantial studies" and the claim that there are certain "common elements" which are necessary for a sound education? Explain.

5. If it is true that the "practical man" is often very impractical the word practical must have a double meaning. What meanings does the word have in the present connection?

6. How would you justify the claim that a liberal education requires various centers of independent interest and organization? What is the significance of gaining a result of this kind?

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CHAPTER XIV

THE EDUCATIONAL SIGNIFICANCE OF MENTAL TESTS

The most striking development within recent years in the field of education is undoubtedly the movement known as mental tests and measurements. It had long been known that pupils differed widely in capacity. But these differences were based on impressions or haphazard evidence, not on objective and relatively simple tests. Now, however, the scientist has invaded this field and has demonstrated that, even here, the application of scientific tests is not beyond the range of possibility. Already we speak familiarly and fluently of mental age and I.Q., which are the symbols of increased refinement in judgment. That the achievements of mental testing will have an important bearing on educational practice in the future is scarcely to be doubted.

It is still too early, perhaps, to forecast accurately the significance of mental tests. But the early reports that are coming back from this new scientific firing line are startling enough to cause wonder and fear. We are told that 25 per cent of the population is subnormal, that the average mentality of the nation is slightly over thirteen years, that only 15 per cent are fit to go to

college, and that 60 per cent of the whole population is poorly adapted — or worse — for high school work. In the face of such returns, we can no longer dismiss Carlyle offhand as a dyspeptic grouch when he says, "England has a population of twenty-six million, mostly fools." On the surface, at all events, the facts constitute a magnificent vindication of Carlyle's insight. To be sure, he did not undertake to prove that the I.Q. remains constant, but he would probably have regarded this constancy as a self-evident fact; and, anyhow, it is claimed that this point has been covered by the researches of our scientists. But if we go as far as this, is not Carlyle justified in his scorn of democracy and the popular ballot, on the ground that the multiplication of ignorance and foolishness cannot produce wisdom?

To some observers it seems abundantly clear that a revision of our conceptions of democracy and of education is logically inevitable. It is predicted that the mental tests will eventually be used to select certain people as members of an intellectual aristocracy, in order that they may be trained for positions of benevolent autocracy over their less fortunate fellow citizens. President Cutten of Colgate University, for example, presents an outline of such a scheme, which he calls "The Reconstruction of Democracy."[1] Perhaps a social reorganization of this general character will

[1] Cutten, George B. — "The Reconstruction of Democracy"; *School and Society*, XVI, 467–89, October 28, 1922.

eventually result, but the zest with which these theorists engage in the work of reconstruction is hardly reassuring. It suggests considerably more fondness for reconstruction than for democracy. To see democracy thus being reconstructed becomes painfully reminiscent of the young lady who smiled as she rode on the tiger. As in the case of the young lady, democracy is finally reconstructed so extensively that it is no longer recognizable by the naked eye.

The question, however, is not what we should like, but what the facts dictate. We of the present generation have been trained into a reverential attitude toward science. Our outlook upon the world is determined essentially by the findings of science, which we accept largely on the basis of authority. When a fact is established scientifically, our sense of intellectual and moral integrity requires us to acquiesce. But we have also learned that it is not always easy to distinguish between fact and inference. The facts may blend so intimately with assumptions, inferences, and anticipations that the innocent bystander is likely to accept the whole composite as a deliverance of science. When it was shown, for example, that all our conscious experiences are cerebrally conditioned, it was regarded by some as proved that "the brain secretes thoughts as the liver secretes bile," or even that mind is nothing but a physical process going on in the brain. When new discoveries are made, it may be exceedingly difficult to determine just what it is that has been proved.

The following quotation is fairly typical of a point of view which claims to have the sanction of the mental tests: "Many are only fit to be hewers of wood, but they should be expert hewers. That is, those who are not fit for higher education should be thoroughly trained in the line for which they may be specially fitted. They should be told what to do, how to do it, and when to do it. They should be trained, but not educated. . . . If democracy is to come to its own by getting the best out of each, then it must do so by a scientific process of selection and elimination, thus creating an intellectual elite."[1]

The writer just quoted does not indulge in figures, but it may be supposed that those who are "not fit for higher education" constitute at least one-half of the population. If by higher education is meant college education, the proportion of the unfit is, of course, much greater. Such an inference is necessary if we are to remain faithful to the deliverances of the mental tests, from which this writer draws his inspiration. Without questioning the findings of the mental tests, we may be permitted to ask how he arrives at the conclusion that the less gifted part of the population "should be told what to do, how to do it, and when to do it," that they "should be trained, but not educated." The character of the inference is not altogether clear. Is it based on an initial assumption that those who are at the top of the mental scale should rule those who

[1] Tait, W. D. — *School and Society*, January 10, 1925, p. 37.

are below? Or does it take for granted that only college graduates, actual or potential, are capable of self-government? Or does the writer mean to imply that education has no appreciable influence on the development of "general intelligence," at least when applied to those who are at the lower end of the scale?

In the opinion of the Greeks it was eminently reasonable that the more intelligent should be the guardians of the less intelligent and do all the thinking that was needed to be done. But it is hardly to be expected that a modern writer would care to defend this position. The notion that capacity for self-government requires the same sort of capacity as is necessary to graduate from college might perhaps be made to look more plausible. But even if this be true, it cannot be claimed that it is proved by the mental tests. The constant complaints that our schools are overflowing with dullards, who are really past saving, suggest that what is really in the minds of the "educational determinists," as Bagley calls them, is the "conviction that the influence of education is very narrowly circumscribed by traits or capacities which, for each individual, are both innate and in themselves practically unmodified by experience or training."[1] In other words, the lack of native endowment makes education beyond certain rudiments a futile business. To quote from the poet

[1] Bagley, W. C. — *Determinism in Education*, p. 11.

Schiller: "Against stupidity even the gods struggle in vain."

Perhaps this pessimism about mass education is justified. But as a matter of cold logic it cannot be denied that it is, so far, merely an unsupported assumption. The mental tests show that there is a wide range of "general intelligence." They show less of this commodity than the American people, with their breezy optimism and their uncritical faith in the proposition that all men are equal, have been in the habit of taking for granted. Our system of popular government has accustomed us to the idea that the common people have a mysterious infallibility in passing judgment on matters of public concern. *Vox populi, vox Dei.* It is naturally a shock to be told in the name of science that the common people whom we have glorified are an aggregate of thirteen-year-olds. The natural result of such a revelation is a loss of faith and a conviction that nothing much is to be expected of the average man and consequently that he "should be trained, but not educated." The psychology of such a reaction is intelligible without bringing in any other factors, such as the emphasis in biology on heredity or the proneness of the academic man toward pride of intellect. We have been disappointed in our expectations and so are in a mood to conclude that in the interests of the common weal the majority "should be told what to do, how to do it, and when to do it." To put it differently, the average of general intelligence is

lower than we had supposed, and so we make the assumption that it is too low for purposes of education, as distinct from training. This may be true, but up to this point it is just an assumption, which finds no adequate support in the deliverances of the mental tests.

There is, however, another factor which operates to give plausibility to this assumption. In spite of the enlightenment that has come from modern science, the great majority of us still think of the mind in the way that was customary in the days of faculty psychology. The "mind" to most people is an entity endowed with various powers. It is not clear that even psychologists have in all cases become emancipated from this belief. Their notion of mind has been influenced by doctrines of physical heredity, so that they are predisposed to think of the mind as something that has a fixed "amount," which is determined by prenatal conditions, like height, or large joints, or a tendency toward baldness. Given such an attitude, it is easy to suppose that the mental tests measure the mind in quite the same direct fashion that a surveyor measures a plot of ground. We can find out quite accurately just how much "mind" an individual has and so it should be possible to foretell how much education an individual can "take" and what he is best fitted to do in life. Mental capacity "is what the individual has inherited. It is the size of the tank into which sensations, perceptions, all that makes up the sum of

knowledge, are poured throughout his life, by his education and his experience." [1]

A closer examination of the facts, however, soon shows that such assumptions are far too simple. We find at once that the thing which is measured directly is not inborn intelligence but acquired intelligence. "It is not always possible — in fact it is extremely difficult — to devise tests that do not to some degree measure the mental content resulting from education and experience, in the effort to measure the mental capacity which limits and controls one's education and experience." [2] If instead of saying that it is "not always possible" we say that it is never possible, the statement becomes entirely correct.[3] This fact is significant because it indicates that the "general intelligence" of the nation, which has occasioned so much pessimism, is not a fixed and changeless thing. This conclusion is further borne out by the studies made by Bagley, which show a high correlation between the results of the Army tests and educational opportunity.[4] His conclusion is that, "rightly interpreted, the results of the tests speak with compelling force, not for educational restriction, but for educational expansion. They

[1] Trabue, M. R., and Stockbridge, F. P. — *Measure Your Mind*, p. 27; Doubleday Page and Company.

[2] *Ibid.*, p. 31.

[3] Cf. Colvin, S. S. — *Nineteenth Yearbook*, Society for the Study of Education, Pt. I, pl. 9.

[4] Cf. Bagley, W. C. — *Determinism in Education*, ch. iv, "Do Good Schools Pay?"

tell us convincingly that the level of *trained* and *informed* intelligence in the nation as a whole could be substantially raised in a generation. They tell us that where schools have been neglected, there is relative weakness; where schools have been cherished there is relative strength."[1]

What is measured by the mental tests is a "mental content resulting from education and experience." They measure, in some way or to some extent, the intelligence that is possessed by the individual at the time the measurement is made. It may be remarked, further, that the constancy of the I.Q. appears to be more open to doubt than was first supposed. For present purposes intelligence may be defined as the ability to exercise foresight, to adapt means to ends, to control behavior in the light of experience. But intelligence in this sense is obviously a composite affair. It is determined in part by original endowment or physical heredity. There is plenty of independent evidence on this point. But intelligence is also determined by other factors. As Thorndike says: "It is probably unwise to spend much time in attempts to separate off sharply certain qualities of man, as his intelligence, from such emotional and vocational qualities as his interest in mental activity, carefulness, determination to respond effectively, persistence in his efforts to do so; or from his amount of knowledge; or from his moral or aesthetic tastes. Even so apparently remote a trait as muscular

[1] *Ibid.*, p. 87.

strength may in some cases coöperate almost indistinguishably in the production of what we would call intellectual products. Thus a great scholar's achievements may be in part due to eye muscles which help make reading a pastime."[1]

In brief, "general intelligence" is conditioned in part by factors of heredity and in part by environmental factors. The qualities enumerated by Thorndike as having a bearing on intelligence, such as carefulness, determination, persistence, moral and aesthetic tastes, etc., may be in large measure acquired traits, and knowledge is obviously an acquired thing. If under such a trait as "carefulness" we include habits of analysis and criticism of thinking generally, the influence of education and experience becomes still more significant. Since intelligence is the product of many factors operating in combination, there is no warrant for the fatalistic notion that we can gauge intelligence as we can record the position of the fixed stars, but are unable to do anything about it. Intelligence is a function operating under conditions that are partly in its own control, and consequently it can undertake to bring about its own improvement; as Bagley says, it "distills its own corrective."[2]

The moral to be drawn from these considerations is first of all that in a democracy the need is "not for

[1] Thorndike, E. L. — "Intelligence and Its Measurement" (A Symposium); *Journal of Educational Psychology*, XII, 24, March, 1921.

[2] *Ibid.*, p. 37.

educational restriction, but for educational expansion." If the general level of intelligence is not what it should be, we cannot excuse ourselves by saying that "no educational methods or teaching can create what has been omitted by nature," or that "we must recognize intellectual levels as the basis of true democratic education."[1] The notion that education must proceed by a program of "selection and elimination" is not a scientifically validated inference, but the product of bias or lack of discrimination. In particular, there is nothing in the results of the mental tests to disprove the faith that education is an equalizing agency, in the sense that it can make the achievements of genius accessible to the common man and qualify him to share in a life of common interests and common aspirations. "Differences in native mentality, of course, are biologically inevitable. It is not their existence but their meaning that we are concerned with. What the determinist has forgotten is that resemblances in ideas, ideals, aspirations, and standards may and do unite men by bonds that are vastly stronger than are the differences in native endowment that would otherwise pull them apart."[2]

It is probably true that many pupils in our schools are unable to profit as much as they should from our present educational system. But this fact does not warrant the inference that some of them should be assigned at an

[1] Tait, *ibid.*, p. 37. See footnote on p. 248.

[2] Bagley, W. C. — *Determinism in Education*, p. 31.

early age to vocational training, while others should be especially trained for leadership. There is some ground for this view if we assume that our traditional curricula and teaching methods represent, not merely the chief, but essentially the only road to the ideal of a liberal education. But if this assumption should prove to be questionable, then, in the language of the racetrack, "all bets are off," and it becomes necessary to take another survey of the facts before we make a move.

What is the primary purpose of public education in a democracy? We have told ourselves, in season and out of season, that the cultivation of common traditions and aspirations is indispensable, if our democracy is to endure. There must be understanding, and the sympathy and coöperation that spring from understanding, or there can be no safety in the future. Our first obligation is to learn how to live together. This, I take it, is the democratic conception of a liberal education. It subordinates utilitarian interests to the great aim of making men human through the cultivation of a common life. This aim we are now called upon to reject, because the mental tests indicate that the majority of the population are not well adapted for secondary and college education. Before we allow ourselves to be stampeded by alarmist utterances, it would be worth while to inquire whether our secondary schools and colleges, as now constituted, are appropriate means for this end. We might inquire further whether, as a matter of fact, these educational agencies were

created and organized with primary reference to the democratic ideal of education.

If we approach the matter historically, we need not go far to discover that the college, at all events, was not conceived in the spirit of democracy. The same may be said of the secondary schools, in so far as these were subject to the dictation of the college. As Dorothy Canfield remarks in her recent novel, *Rough Hewn*, the preparatory school "realized the ideal of the eighteenth century educator who felt that the only safe upbringing for boys would be to shut them up in a barrel, between the ages of twelve and eighteen, and feed them through the bunghole." People who argue that we must begin to conduct our educational activities on the basis of an aristocratic ideal do not seem to realize that this is what we have been doing all the time. At the upper end of the educational scale, certainly, the general trend, in so far as it was directed by a conscious ideal, has not been toward the cultivation of a wider comprehension and wider sympathies as regards the concrete, practical affairs of life, but away from them.

Fortunately, the public high schools did not submit to the jurisdiction of the college with complete docility. It was felt all along that there was an important difference between preparation for life and preparation for college. The revolt, however, has brought other evils and other dangers. The present-day movement in the direction of vocational education springs largely

from the mistaken notion that preparation for life is identical with preparation for a vocation. Unless we bear constantly in mind that public education has no proper concern with vocation at all, except in so far as training in vocation may serve to promote the ends of democracy, this whole vocational movement will play directly into the hands of the enemy. It will mean a practical acceptance of the view that advanced education should be limited to the chosen few, and that the rank and file are to be predestined by their training to engage in occupations of which they are unable to understand the social significance.

We have heard much of late years about individual differences. The recognition of these differences is, without doubt, of tremendous educational significance. But what, precisely, is their significance? We are disposed to assume that if a boy has marked mechanical ability and does not care much for books he should be set apart for a vocational education. But what is to prevent us from training this ability so that it will become a basis for the development of shared interests and shared aims, in accordance with the ideal of democracy? Agriculture and home economics, for example, may both be used to give insight into the human significance, not only of these subjects, but of chemistry and geography; mechanical construction and commercial relations may both serve as a gateway to a wider appreciation of human relations as involved in numbers and in the origin and quality of materials. Pupils

who have neither taste nor aptitude for the expertness of the academic specialist may make real progress along such lines. The real teacher, like the real missionary, is all things to all men, in order that all may be brought into the educational Kingdom of Heaven. The recognition of individual differences should mean simply that the means must be various, although the end is one. But, as a matter of fact, the recognition of individual differences has led to the inference that the end was all a mistake and that it is the duty of the educator to accept as a limitation what he should regard as a challenge, if not as an opportunity.

It will be said, perhaps, that all this is but an attempt to blink the fact of individual differences in intelligence. When people begin to talk about democracy they create a haze of sentimentality in which it is easy to lose sight of the disagreeable fact that the educator is as incapable as anyone else of making a silk purse out of a sow's ear. "What is preordained by the protozoa cannot be changed by act of Parliament." There are levels of intelligence, certainly, of which nothing much is to be expected. I have no desire to gloss over this fact. My concern just now is with the contention that there is a difference between saying that the bulk of the population is not well adapted for meeting the requirements of our high schools and colleges and saying that they are not to be nurtured in the mental outlook, the traditions, or the ideals which constitute our common heritage. Nothing short of this is democ-

racy. And I submit that there is nothing in the results of mental testing which shows this to be an impossibility.

It was Burke, I believe, who said at the time of the American Revolution that "you cannot indict a nation." A standard that leads to such a result has something the matter with it. At any rate, when we are told, or seem to be told, that the average man is deplorably below the average, the argument somehow fails to carry conviction. The outsider, if he is reflective, tends to become confused, and he is likely to feel thankful that the mental testers did not have an opportunity to search him personally for this thing called intelligence. Perhaps it is true that, judged by the mental tests, this is a nation of thirteen-year-olds. But the interpretation of this alleged fact remains open to question. Perhaps its chief significance is that *common* education stops at about this age. As Bagley has contended so forcefully, it may be that our tests are primarily tests of *attainment*, of educational opportunity, rather than tests of native ability. It is probably not just an accident that the average mental age coincides roughly with the chronological age at which pupils either leave school or go in for more specialized forms of education. To quote another writer: "Because our scale ceases to register an increase in average intelligence beyond the point at which most children have a common development, need we deny the further growth of intelligence, or shall we say that the nature of its

growth is such that it can be measured only by additional tests of a finer and more discriminating type? Is it not reasonable to suppose that intelligence which develops in specific directions can be measured only by specific tests?"[1] At any rate, the mental tests are far from proving that the time has come to abandon democratic ideals of education. It does not follow that the rank and file of the population must be consigned to vocationalism on the ground that this is their only opportunity to "make the most of themselves." As I have tried to suggest, a study of intelligence can give us a very different perspective on the educational significance of "mental age" and of the I.Q. It is by no means certain that these concepts, as developed in present-day tests, stand for hard and fast measurements of educability; and in particular they do not warrant the inference that the democratic ideal of education must be abandoned for any considerable portion of the population. The significance of these tests is rather that there are various kinds of grist for the educational mill. To quote again from Thorndike: "Consider a score attained by a twelve-year-old boy in say a combination of Stanford-Binet, National A and B, and Haggerty Delta 2 (two trials of each). If the boy has had ordinary American opportunities, this score will prophesy rather accurately how well he will respond to intellectual demands in the case of 'book-

[1] Link, H. C. — "What is Intelligence?" *Atlantic Monthly*, September, 1923.

learning' at the time and for some years thereafter, and very possibly for all his life. It will prophesy less accurately how well he will succeed in thinking about people and their passions and in responding to these. We know that, taking people as we find them, the ability measured by verbal tests is not the same as the ability measured by non-verbal tests, and there is reason to expect other similar specializations."[1]

The mental tests are unquestionably valuable for certain kinds of classifications and predictions. Their use, however, should not blind us to the fact that life is a garment of many hues. Thinking may occupy itself with many varieties of facts and relations, and it may occupy itself with these in various ways and with varying degrees of skill. The results of the mental tests have given new evidence for the view that education must take account of a much greater range of interests and abilities than it has done in the past. But these results have contributed nothing to shake the conviction that education in a democracy is under obligation to build upon these various interests and abilities a superstructure of common attitude and common knowledge. The fulfillment of this obligation means the realization of the democratic ideal of liberal education, the ideal to which our national history has irrevocably committed us and which embodies our most cherished conceptions of organized social living.

[1] Thorndike, E. L. — "Intelligence and Its Measurement" (A Symposium); *Journal of Educational Psychology*, XII, 125–26.

Questions and Exercises

1. What seems to be the conception of democracy underlying the view that education should be a process of selection and elimination, for the purpose of creating an intellectual elite?

2. Does education tend to make persons more equal or less equal? Give reasons.

3. What do you think of the view that pupils should be segregated on the basis of the I.Q.? What do you think of the view that such segregation is incompatible with the idea of democracy?

4. What relation, if any, do you find between current discussions of tests and the doctrine of faculty psychology?

5. What is the significance of the statement that we are a nation of thirteen-year-olds?

6. Distinguish as carefully as you can between unproved assumption and the contribution that is of permanent value, as you see it, in the testing movement.

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CHAPTER XV

SCIENTIFIC METHOD AND EDUCATIONAL THEORY

There is a saying, emanating from the best of authorities, to the effect that a prophet is not without honor, save in his own country. This saying has had a peculiar significance for the professor of education. Speaking generally, we may say that during the past twenty or thirty years the only chance for the professor of education to be a prophet at all was in places away from home. His services were in great demand at teachers' institutes and educational conferences; and in such places he was listened to and quoted with great deference. But among his colleagues he was ordinarily regarded as something less than a full-sized man. He might be treated with the Christian charity that is due to a weaker brother, but he could not command the respect of an equal.

The situation was highly peculiar. It is hardly an exaggeration to say that there was no man on the faculty whose services were more in demand on the outside than those of the professor of education. He was constantly being solicited for addresses, not only at educational gatherings but at commencement exercises and before clubs and organizations without number. On such occasions he was accustomed to find himself

treated with all the reverence due to a celebrity and eminent authority. It was all very pleasant, of course, and he might be pardoned if he pinched himself occasionally to make sure that he was not dreaming. But at home such precautions were wholly unnecessary. When he was on his own campus he was in no danger whatever of excessive adulation. It rarely even occurred to his colleagues that he might have anything to say about education which could be of any possible interest to real educators. To the more conservative members of the faculty the presence of the professor of education was a more or less disagreeable necessity, because some concession had to be made to the clamorous demand from the outside for courses in education. It was something that could not be helped; although in maintaining a department of education the institution, in their view, took serious chances on lowering the general average of intellect and scholarship of its faculty as a whole.

It is not my purpose to make a plea for the professor of education. There are many other objects in the world more deserving of sympathy and consideration. My concern just now is to direct attention to the significant fact that for so long a time education was an urgent problem outside the colleges and no problem at all inside them. Professional colleges, to be sure, were disposed to recognize the existence of educational problems and to be exercised over them. But the college of liberal arts was never seriously afflicted in

this way. The casual observer could hardly avoid the impression that perplexing problems are to be encountered only in the foothills, so to speak, of the educational mountains. On the high level of liberal education, all is serene and clear. When we penetrate to those higher regions, the tumult and the shouting are left behind, and we find ourselves in the presence of eternal and immutable spiritual values which shine by their own light without any help from courses in education.

To put it differently, the main reason why college men have been contemptuous in their attitude toward the study of education is that they have failed to recognize that there is a problem of aims or objectives in education or in teacher training. Since they were aware of no such problem, they could not see that there were any significant issues at stake. That is why the college man, despite all the educational turmoil, maintained an attitude of peaceful detachment. His reasoning was engagingly simple. The fundamental subjects of the curriculum, the subjects that have become inwoven with the whole of our civilization, so he argued, have been taught for centuries. Who, then, are the best judges of educational values in such subjects as Latin and mathematics and history? Obviously they are the men who are devoting their whole lives to the study of these subjects. In the course of generations these subjects have evolved their own values and their own methods. If methods are determined by values

or objectives, then the men best qualified to give teaching courses are the experts in the subject, and the best qualification for teaching is the Ph.D. degree.

From this standpoint there was naturally little room in the scheme of things for a professor of education. He was a plain superfluity. College instruction was the business of experts, and he must not presume to meddle with that at all. Public school education was on a lower plane, to be sure, but the principle was the same. A person who knew his subject thoroughly had nothing to learn from a professor of education. About all that was left for this professor to do, therefore, was to give instruction in first aid to those unfortunates who were to go out on the educational firing line without having a thorough knowledge of the subject to be taught. "How to teach, though ignorant," was supposed to be the great problem in teacher training. At best the professor's work was supposed to consist in refining the methods that were already in use; at worst in deluding innocent school ma'ams into the belief that training in methods would enable them to teach any subject in the curriculum. It might be conceded that some knowledge of child psychology in addition to knowledge of the subject would be useful in elementary instruction, but this could be acquired more safely and more authoritatively from the department of psychology than from the professor of education.

The reason, then, why college men took an unfriendly attitude toward courses in education lay primarily in the assumption that the objectives of education had been determined, once for all, a long time ago. These objectives were the objectives of the specialists in the several fields. The correct attitude in education, from this standpoint, is the attitude of absorption in intellectual and artistic matters regardless of their bearing on everyday life. It is the attitude of Archimedes, whose absorption in geometrical problems rendered him oblivious to the siege and sack of the city, or the attitude of the expert on Homer who regretted on his deathbed that he had not given his life to the study of the dative case.

It is not my intention to disparage the devotion and the sacrifices of scholarship. Without this devotion the record of our civilization would be much more ignoble and unlovely than it is at present. The cultivation of scholarship is indispensable for progress. But education is more than specialization, and life is more than scholarship. The present is a period of great educational unrest, because new conceptions of life and of ideal values are pressing for recognition. The older view of life, which identified educational objectives with the objectives of specialization, is being superseded. The moment that we challenge this older view, the whole perspective changes. Courses in education that are the conscious expression or embodiment of a philosophy of life may be viewed as dangerous

or as unworthy, but they can never be treated with indifference.

Unfortunately the real meaning of the situation was not clearly understood. There was no adequate appreciation of the fact that the representatives of tradition were essentially right in their conclusions as long as their premises were not questioned. Why, in the name of reason, should there be such a thing as a science of education, assuming the possibility of such a science? If the objectives of the specialist are the proper objectives in classroom teaching, the whole question is settled in advance. There is then no need of considering individual differences, since the specialist is concerned with the mind only as a "pure cold logic engine," and logic is the same thing everywhere. Nor is he concerned with the applications of his subject to the everyday affairs of life, since "pure" science is sufficient unto itself. His pedagogical obligations are fulfilled if he presents his material in coherent and lucid form, and with sufficient simplicity to bring it within the student's range of comprehension. These obligations may not always be easy to meet, but it is difficult to see how things would be much improved by a science of education. At best such a "science" could contribute only teaching devices and refinements of existing technique — pedagogy, in the insidious sense of the term.

It is doubtful whether the pioneers in educational science had a clear notion of what they expected to do

with their new science after they had got it. But their faith in the need of such a science was undimmed. Sustained by this faith they went bravely to work, while the rest of the world stood by and scoffed. It was no small task to convert education into a full-fledged science. At the outset this new candidate for scientific honors had considerable difficulty in concealing its nakedness. It consisted mainly of borrowings from biology, psychology, ethics, and sociology. The unhappy undergraduates who were compelled by various requirements to take college courses in education were usually unable to see any connection between these courses and the work of teaching. There is reason to suspect that the instructors frequently suffered from the same disability. Moreover, the work was not always up to standard. There was much talk about recapitulation, adolescence, instinct, and other topics that was neither practical nor scientific. Some of it, if the truth be told, was a plain scandal. No wonder, then, that education was viewed askance by the men who were working in older and well-established fields.

In the normal schools a serious attempt was made to keep instruction in education on the practical level. But here again the neglect of objectives worked havoc. Teacher training tended to become training in a set of methods or rules that were designed to work automatically. The teacher was not primarily a missionary for an educational gospel, but more like a foreman in a

shop, with everything standardized and reduced to rules. It was practicality made grotesque; or, to borrow a descriptive phrase, it was horse sense made asinine. This sort of training naturally did not get very far either. It did not give men and women a wide outlook or intellectual discipline. It trained artisans or mechanics, by teaching them the devices or tricks of the trade.

Time has worked in favor of the professor of education. The demand for his kind of goods has continued and has increased in volume. His colleagues have become used to him and are acquiring the disposition to accept him without pressing the old question of what it is all about. This result has been hastened by the fact that the study of education, in some of its aspects, has been able to demonstrate its scientific quality. Mental measurements, for example, and the study of individual differences, are as much matters of investigation and scientific procedure as physics and chemistry, regardless of what we think of the results that have been obtained up to date. School administration is the same sort of subject, viewed academically, as the management of corporations or the study of government. But the underlying issue is still present. Little has been done so far with the question of college teaching, which suggests that the issue is not clearly envisaged as a conflict of ideals. There has been considerable grumbling about the abstract or "high-brow" character of college teaching,

but the war has not been carried into the enemy's country. As long as the question of ideals is not raised, the professional study of education is necessarily directed chiefly toward refinements of prevailing practice, and the suspicion of our Tory friends that the study of education means much ado about nothing has a certain basis in fact.

There are times when a frontal attack is good strategy. What is the dominant purpose and method of college teaching? If we try to find the answer, not in the language of college catalogues, but in terms of attitude and practice, we get a new angle on the situation. As was discussed previously (see chapter iii), the Aristotelian ideal of the "cultivation of the mind" proved congenial to the attitude of complete devotion to "pure" science. The purpose of the scientist is to build up a structure of knowledge so organized or articulated as to lend itself to purposes of deduction and prediction. The scientist cultivates this kind of knowledge because it is the kind of knowledge which is effective for purposes of research. Since research is his business, we cannot very well quarrel with him on this score. But the question of how a scientifically organized body of knowledge should be used for educational purposes is a separate and independent question. It is scarcely an overstatement, however, to say that this fact has not been clearly recognized. The tendency has been to take this body of knowledge into the classroom and teach it "straight." If the question of justification is raised, it is assumed

that the student should have the same sort of intellectual interest as the specialist. That is, the specialist in the classroom is disposed to take for granted that his own attitude is the attitude of culture and devotion to the higher life.

To Aristotle this attitude was entirely reasonable. The mind, so he argued, is man's distinctive possession; it is the trait that distinguishes him from the lower animals. Consequently, the cultivation of the mind gives nobility to life and is the surest source of happiness. But to the modern man the case is not so simple. Life presents many more interests now, which are pressing for recognition. It is just as reasonable to look for man's distinctive trait in moral as in intellectual matters and to hold that what gives life nobility and value is a certain type of relationship with his fellow men. In order to become humanized men must be socialized. The ideal of love of truth and devotion to the pursuit of knowledge is indeed of fundamental importance. We may grant this cordially and unreservedly. Yet an educational program or procedure of teaching that places an exclusive or one-sided emphasis on this ideal turns out to be curiously weak under critical examination. There is so much more to life than scholarship. The fact that this educational attitude has proved so strong is an impressive tribute to the power of tradition.

When we raise the question of the place or function that should be assigned to the various sciences in a program of education we are placing ourselves outside

the field of the sciences in order to take a look at them. To do so is not in any sense to make an attack on the sciences or on scientific method. We are simply raising another sort of question. This question, it will be observed, is not raised within any of the sciences. It is a question that does not concern them as sciences at all. Each of the sciences offers a body of knowledge and lays down a procedure for investigation within that particular field. Why we should cultivate that field or what we shall do with the results that are obtained is quite another matter. This is a question of educational program or theory. To raise this question is to take a first step toward the determination of an *attitude* with regard to the established body of knowledge, to start on a quest for principles that will serve as guides to educational practice. For example, if we ask why mathematics or history should be studied, we are not raising a mathematical or historical question, but a question of a very different and perhaps more practical sort. The answers to such a question may be various, as is shown by a glance at the history of education. The study of these subjects might be defended on the ground of culture, or utility, citizenship, character development, complete living, worthy employment of leisure, and so on indefinitely. This diversity of reasons points to the fact that the subjects in question have a variety of possible values. But if we try to recognize these values, we run into a further difficulty. What sort of culture, utility, citizenship, etc., shall we

cultivate, and what is the most effective way of doing this? When we raise this question we run into such issues as aristocracy versus democracy, logical organization versus practical needs, present living versus future living, interest versus duty, the nature of habit and of thinking, and the like. It is important to remember that when a person starts to reflect he is already in possession of a set of values or beliefs. He believes in such things as democracy, Christianity, education, honesty, and the like. The reason he reflects at all is that certain conflicts have arisen, as, for example, the conflict between theology and biology. In order to adjust a conflict of this sort he may find it necessary to revise his previous beliefs quite extensively. He then seeks to reinterpret his previous beliefs in such a way as to eliminate the conflict, at any rate to the extent of protecting and harmonizing the values about which we are really concerned. When we set out to do this we are said to be philosophizing, and the product of such labors is educational theory. The result is secured by giving new meanings to old ideas, in pretty much the same way as Newton reinterpreted the whole system of material objects in order to provide a place in it for the moon as a falling body.

It has long been recognized, though usually in a vague way, that educational theory, or philosophy of education, is somehow different from science. The nature of the difference has just been indicated by the statement that educational theory has to do with atti-

tudes or value or progress. The sciences furnish us bodies of organized and established fact. For what ends the various sciences shall be used is a separate and independent question, for which educational theory must provide a general answer. The task of educational theory is not discovery of fact, but interpretation. It takes the facts furnished by the sciences, and consequently has no technique of investigation of its own. When conditions change so as to require a revision of educational ideals, it has to begin all over again. The democratic ideal or program of education is a good instance of educational theory. First of all, the ideal needs to be formulated, and then comes the task of applying it to such matters as curriculum construction, the theory of mind, classroom procedure, assignments, and the like. The whole question of teaching method crowds in as soon as we recognize any aim other than the technical expertness of the specialist. In setting up aims, theory is frequently obliged to function as a critic of scientific procedure, by showing on occasion that the conclusions which are drawn in the name of science are not scientific at all.

It should be noted, further, that educational theory serves as a clearing house for social changes. Our national history offers a convenient illustration. For a long time the aristocratic ideal of education maintained itself in this country without serious difficulty. The reason is not far to seek. Speaking generally, the early colonists came to these shores to escape from

political or social or economic oppression. They did not come here to establish a democracy in the modern sense of the term. To their thinking, democracy and freedom consisted chiefly in being let alone, not in the cultivation of common interests and a common life. Moreover, the conditions of life made no direct demand for extensive educational equipment. Consequently the colonists were aware of no pressing need for any extensive reforms in education. As it happened, their conception of democracy and freedom suited the early conditions well enough. Nature had interposed a protecting barrier of three thousand ocean miles to the east, and had opened up three thousand miles of wilderness to the west. Under these circumstances men could live their own lives with a minimum of interference from others. As long as these circumstances persisted, it was impossible to develop a stratified society with rigid class lines. There was too much freedom of movement, too much incentive to go pioneering whenever local conditions became distasteful. Much of our American history is the story of what Roosevelt calls the Winning of the West, the story of the struggles, the exploits, and the achievements of men who were accustomed all their lives to shift for themselves.

All this, however, was but a temporary phase. In the course of time the frontier disappeared, the country began to fill up, and radical changes took place in industrial and economic conditions. It was then that

the serious defects in our educational system began to appear. It did not train people to meet the requirements of the new conditions. Elementary education offered little beyond the equipment of a humble wage-earner. The academies were training schools for the colleges. The colleges were concerned chiefly with matters that bore no very appreciable relation to public affairs or to the great affairs of industry and business. The discrepancy between traditional educational ideals and our national ideals could no longer be ignored. The time had come for a revision of theory, for a conception of education as neither primarily vocational nor primarily for leisure, but for participation in the intellectual and social life of the community and of the nation. The deeper meaning of the changes that were taking place was that a democracy must have its own type of education or perish.

With these social changes going on, the efforts of tradition, as embodied in college ideals and practices, to keep the study of education within the narrow limits of formal methodology were like trying to sweep back the tides. The demand, vague and unformulated perhaps, that education be somehow brought into intimate relation with life was strong and insistent. As a consequence the study of education became an attempt to give body and expression to a new social demand and a new social program. If we grant that this demand is justified, the cultivation of educational theory becomes an urgent need. The volume of talk

about "educational objectives" is evidence that the old landmarks are shifting, that we are on the way toward new standards and a new outlook.

Unfortunately the fact that education requires the formulation of a social program or aim has not been sufficiently appreciated among educators. Instead of creating new ideals we have been too much disposed to revamp the old ones. We are agreed, for example, that it is necessary to bring education into closer contact with life. But all too often this has meant simply an overemphasis of economic utility, thus making education a worship of the devil of sordid practicality. On the other hand the desire to protect the great enduring values of civilization led to renewed stress on the old ideal of culture, in obliviousness of the fact that a new ideal of culture was in the making. To many observers the changes going on in American education meant nothing but a struggle between a soulless materialism and the intangible things of the spirit. America, we were told again and again, was in process of selling its birthright for a mess of pottage; it was growing rich and powerful, but it had no appreciation of the things that give dignity and beauty to life. The theme has been made familiar by many writers, both native and foreign, who have frequently been at no pains to conceal their contempt for our shabby democracy. The criticism has usually come from persons who had little understanding or appreciation of democracy, but it carried just enough truth to leave a sting. We had

grown indifferent to the educational ideals of the past, but we had not developed new ideals worthy of our traditions and of our national spirit.

There is much talk at present of education as a science, but education as a science has a significant place only on the basis of a social program or educational philosophy. Take away this program, and the result is bewilderment and futility. The current enthusiasm for "scientific education" is all too often oblivious to the fact that any guiding principle is necessary. Many of our educational leaders seem to approach their task without any definite point of orientation, without any clear consciousness of whence we have come and whither we ought to go. Hence we have the pathetic notion that the way to get our bearings is to dig down into the dirt instead of taking a survey of the landscape. We are advised to "study the facts," the idea being that statistics will tell us not only what is, but what ought to be. From one quarter comes the suggestion that objectives be determined by a count of noses, to see what the people want. From another quarter we are advised to made a list of all desirable human attributes or abilities, and then organize our educational subject matter so as to realize these attributes or abilities. A third suggestion is to the effect that frequency of use or of reference may be a satisfactory guide to educational values. The relative value of historical facts, for example, may, according to this last proposition, be determined by

comparing the number of allusions that are made to them in books and periodicals and newspapers. From a sample that is given of the method, one gathers that W. J. Bryan has the same historical importance as Shakespeare, that William Randolph Hearst ranks with Martin Luther, and that Socrates breaks even with the Mexican bandit Villa.

It is comparatively rare that any exception is taken in this country to the proposition that education must serve to promote the interests of democracy. Assent to this proposition, however, is not equivalent to the adoption of a program. The popular concept of democracy is too vague, too inclusive of disparate and conflicting elements, to furnish safe explicit guidance. Taken negatively and historically, democracy is a protest against the limitations imposed upon the individual by aristocratic organizations of society. On the positive side it means that the resources of society are to be utilized so as to secure a maximum development for all the members of society. This requires the teaching of certain subject matter and the development of a certain attitude of mind which we call the democratic spirit. In other words, the concept of democracy involves a *program of living.* The formulation of such a program calls for a consideration of such matters as the nature and functioning of mind, of the distinction between truth and error and between right and wrong, and the criteria by which we may evaluate social organization. The development of

such a program is ordinarily considered to be an undertaking in philosophy rather than in science. But that is perhaps largely a question of names. What is important in the present connection is that such a program is necessary as a basis for the effective application of what we commonly call scientific education. The program tells us in which direction education should move; it furnishes the standards or objectives by which we may be guided in the scientific determination of "immediate objectives," *i.e.* the objectives which serve as means for the realization of more ulterior ends.

The utilization of scientific method is an outstanding development of modern education. The possibilities of this development have been unnecessarily limited by the failure to appreciate the need of a guiding philosophy. We have long been familiar with the proposition that education is vital to a democracy, but our shortsightedness had led us to interpret this, in the main, as meaning that education must reach more people and must be applied in larger doses in a democracy than in other forms of society. We have not been sufficiently concerned to emphasize the fact that a democracy needs a distinctive type of education. It is self-evident that the political life of a democracy is necessarily a distinctive thing; but the significance of the democratic ideal for education has not been equally clear. We have been too little concerned in the past to formulate the objectives of education and of teacher

training in terms of the meaning of education for a democracy. Until this task is achieved, educational reform is bound to mean the destruction of old educational values for the sake of cheap and immediate ends and the traditional hostility of college men to professors of education will continue to have a large measure of justification.

Questions and Exercises

1. Distinguish between science of education and philosophy of education. Give an illustration from each of these two fields.

2. How would you account for the fact that education, as a subject for professional study, was so long regarded with disfavor? What justification was there for this attitude?

3. How does the problem of teaching in the college resemble the problem of teaching in the grades, and how does it differ? Give illustrations.

4. Give an illustration to show that educational practice reflects social organization. Why does educational practice tend to lag behind social change? In what way could this be remedied?

5. Give reasons to show that the problem of educational theory is, in some respects, a more serious problem than in previous years.

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